THE

AMERICAN GAS-LIGHT JOURNAL

Devoted to GAS-LIGHTING, WATER-SUPPLY, and SEWERAGE.

JOHN B. MURRAY, BANKER, No. 40 WALL STREET, NEW YORK, SOLE PROPRIETOR.

"LET THERE BE LIGHT!"

FIRST YEAR.—No. 5. NEW YORK, TUESDAY, NOVEMBER 1, 1859. $3 PER ANNUM.

TO GAS FITTERS AND PLUMBERS.

WROUGHT IRON GAS PIPE HOOKS, HOWever small a matter for gas fitters, are often a trouble for not having them sometimes on hand when required. L. WAEFELER & Co., 94 Beekman street, N. Y., have always on hand several hundred kegs of all sizes, from ¼-inch to 2-inch. They are made of the best quality horse-shoe nail-iron, and are warranted not to break. They also keep constantly on hand a large assortment of all kinds of materials for PLUMBERS, such as China Wash Basins, Closet Basins, Pan Closets, Bath Tubs, Boilers, Brass and Silver-plated Cocks, Brass and Iron Pumps, Hydraulic Rams, French Fountain Jets, &c., all at the very lowest prices.

WATERMAN GAS REGULATOR COMPANY,

418 BROADWAY, NEW YORK, FOR THE SALE of their SUPERIOR GAS REGULATORS.—WM. H. GRIFFITH, Secretary.—Also, Rights under the Patent, for Cities and States, to which the attention of capitalists is respectfully invited, as affording a profitable investment.

PRICES FOR REGULATORS ATTACHED.

For	3	Light	Meter	running	10	Burners, or under	$10
"	5	"	"		20	" "	13
"	10	"	"		30	" "	19
"	20	"	"		60	" "	25
"	30	"	"		90	" "	40

Regulators for 40-light meters and upwards, sold by special contract. In all cases the regulators will be sold to correspond with the size of the meter to which it is to be attached, and with proper burners, (union jets or Scotch tips,) the consumer must save from 25 to 50 per cent. in the consumption of gas, with a more beautiful, soft, and mellow light.

PLEASE CALL AND EXAMINE ILLUSTRATIONS AT THIS OFFICE.

CHECK-BOOKS FOR GAS CONSUMERS.

GAS METER CHECK-BOOKS, ARRANGED WITH a meter index to record the consumption of gas for twelve months, detecting at once any over-charge by a gas-light company and rendering a mistake impossible. Price 25 cents each, or $15 per hundred, delivered free of postage. Postage stamps can be remitted in payment.

Address Office of the AMERICAN GAS-LIGHT JOURNAL, No. 40 Wall street, New York City.

THE MANAGER OF A PROVINCIAL GAS-Works in England, is desirous of obtaining a similar situation in the United States. He has had many years' experience in gas-works in all their various departments. He has first-class testimonials, which may be seen by applying at the office of the AMERICAN GAS-LIGHT JOURNAL. Address J. S.

COKE FOR SALE,

AT THE WORKS OF THE MANHATTAN GAS-Light Company, 18th street station, corner 10th avenue and 18th street; and 14th street station, corner Avenue C and 14th street. $2.50 per chaldron in the yard. Cartage, seventy-five cents.

LAND IN CANADA FOR GAS-LIGHT SHARES.

Town of	Cobourg,	Northumberland Co.	.....	14 acres.
Do.	Hamilton,	do.	do.	100 "
Do.	North Monaghan,	Peterborough	do.	600 "
Do.	South do.	do.	do.	100 "
Do.	Dummer,	do.	do.	100 "
Do.	Douro,	do.	do.	223 "
Do.	Haldimond,	Northumberland	do.	200 "

These lands are well located, and will be exchanged on equitable terms for sound, dividend-paying gas-light shares in the United States or British Provinces.

Apply to or address E. R. L., Post-Office, Toronto, Canada.

THOMAS NICHOLL,

GAS AND STEAM FITTER AND PLUMBER, Nos. 170 and 172 Centre Street, (next door to N. Y. Gas Co.'s office,) New York. Pipes inserted in Churches, Factories and Dwellings; Chandeliers Regilt; Jobbing promptly attended to.

H. P. GENGEMBRE'S

PATENT NON-FREEZING AND NON-EVAPORating Gas-Meter Fluid.

A meter once filled with this fluid will require no further attendance; will allow any amount of gas to pass through without affecting the level of the fluid, and will work equally well in winter or summer, however exposed it may be.

The undersigned, wishing it tested as thoroughly as possible, will afford every facility to companies desirous of experimenting with his fluid. Address A. DOISY, Box 1280, Cincinnati, O.

JOHN B. MURRAY,

BANKER, No. 40 WALL STREET, NEW YORK City, offers for sale a variety of GAS-LIGHT SHARES, paying eight to twelve per cent. regular dividends; the most sound and reliable security for permanent investment that exists. Those having gas-light shares to sell, as well as those wishing to buy, are invited to communicate with this office.

CLEGG'S TREATISE ON COAL-GAS MANUFACture, with full instructions upon every detail incident to Gas-making, illustrated by engravings. No gas company or engineer should be without it. The third edition, now being printed in London, is expected by the next steamer. For sale at the office of the AMERICAN GAS-LIGHT JOURNAL, No. 40 Wall street, New York City.

PHILADELPHIA GAS-FIXTURE WORKS.

WARNER, MISKEY & MERRILL, MANUFACturers; store No. 718 Chestnut street, Philadelphia. Warner, Peck & Co., No. 376 Broadway, N. Y., would respectfully inform the public that they continue to manufacture all kinds of Gas Fixtures, Lamps, Girandoles, Bronzes &c., &c., and that their large and varied stock comprises the simplest as well as the most elaborate patterns, designed by their French artists. They also continue to keep at their store, No. 376 Broadway, a large and full assortment of all their manufactured goods. Dealers and others are invited to call and examine.

BUTLERS PATENT PORTABLE GAS-WORKS are designed for Dwellings, Churches, Factories and Country Villages, as well as for large consumers in cities. They make gas from CRUDE ROSIN, and are WARRANTED to make as rich an article, at less than ONE-HALF the cost of that made by the old method in Portable Gas-Works, and at one-third the average price of Coal Gas as sold in cities. Great savings in expense of light GUARANTEED to large consumers.

Works of all sizes furnished to suit applicants. Mains, Service and Distributing Pipes put in. Also, a large assortment of Gas Chandeliers, and other fixtures, always on hand, at the lowest prices.

The MANSION HOUSE, BROOKLYN, with 250 burners in constant use, make their own gas with my apparatus, with results as stated above. This (with a small one to my store) can be seen in operation by application at my office, where descriptive pamphlets, with the names of numbers who are using them, will be furnished.

JOHN BUTLER,
Nos. 112 Fulton and 15 Henry streets,
Brooklyn, N. Y.

WILLIAM ROY,

74 BROADWAY, NEW YORK, IMPORTER OF the celebrated PERCETON FIRE-CLAY RETORTS, the quality of which is superior to any other clay yet discovered. Analysis as under:

Silica	62.5	Magnesia	0.3
Alumina	35.0	Prox. of Manganese	0.2
Prox. of iron	0.9	Phos. of iron	0.5
Lime	0.6		

VITRIFIED FIRE-CLAY PIPES, from 2-inch to 36-inch, in lengths of two or three feet; are indestructible, and not affected by gases or acids.

Thomas Edington & Son's PATENT CAST IRON PIPES are cast vertically to any weight required. They can also be coated with Dr. Smith's Solution, which prevents corrosion; adapted for gas and water. Made in lengths of nine and twelve feet, or turned and bored joints.

WROUGHT IRON TUBES and all materials for gas and water works. Fire-Bricks, Fire-Clay, Water Hydrants, Scotch and English Cannel Coal, &c. Kennedy's Water Meters for measuring the flow of water—indispensable to all water companies.

DAVID JONES,

ORNAMENTAL JAPANNER, No. 243 NORTH SEcond street, Philadelphia, respectfully solicits a liberal share of patronage from the manufacturers of Gas Meters and others. He is prepared to execute all orders for Japanning, promptly and reasonably.

Reference—Code, Hopper & Gratz, Gas Meter makers, Phila.

STATION METERS FOR SALE.

TWO STATION METERS; ONE TO REGISTER 300,000, and one 500,000 feet per day. Apply to the Engineer of the Manhattan Gas-Light Co., at the Works, foot of 18th street, North River.

COKE FOR SALE,

AT THE WORKS OF THE NEW YORK GAS Light Company. Apply to the Engineer, at the Works, between 21st and 22d streets, East River.

MOST VALUABLE DISCOVERY OF THE AGE.

NO MORE MONOPOLY IN GAS.

The attention of the public is called to "WERNER'S PATENT WOOD-GAS APPARATUS," by which method we can produce from each cord of wood 15,000 feet of gas, of a brilliancy at least twenty per cent. superior to that produced from coal, and with less than one-half the labor, besides other useful products, which will pay the entire cost of producing, as is shown in the following estimate:

Cost of a cord of wood in New York city	$6.50
" lime for purifying	1.00
" labor for making	2.00
	$9.50

VALUE OF PRODUCTS.

40 bushels very superior charcoal, at 12½ c.	$5.00
100 gallons pyroligneous vinegar, at 8c.	3.00
150 lbs. tar, (equal to Swedish tar)	1.50
	$9.50
Besides 15,000 cubic feet of gas, which, at New York city prices, is worth	$37.50

The Apparatus can be seen in operation and further particulars, descriptive circulars, &c., obtained, by applying at the office of patentees, No. 23 Liberty street, where companies, private individuals, or others, wishing to purchase rights for cities, counties or States, can receive all necessary information.

THE ADVERTISER IS DESIROUS OF EMPLOYment with some Gas Company, south or west, as Agent, Book-keeper, Clerk or Superintendent; has had 8 years' practical experience, and is fully posted in all business details. First-class references can be seen by applying to the editor of the AMERICAN GAS-LIGHT JOURNAL, to whose care communications may be addressed to T. V.

TO BUILDERS OF GAS-WORKS.

ONE OF THE PRINCIPAL CITIES OF SOUTH America has granted to a gentleman now in New York, the monopoly for supplying that city with gas.

The translation of the grant, and a letter from the United States Legation, certifying to its great merits, are at the office of the AMERICAN GAS LIGHT JOURNAL, No. 40 Wall street, New York City, where parties wishing to purchase the grant, and erect the works, can address Senor M. G. D.

GAS COAL.—PENN COAL CO.

THE PENN COAL COMPANY HAVING COMpleted arrangements for mining and shipping Coal on an extensive scale, are now prepared to receive orders. The mines are favorably located on the line of the Pennsylvania Railroad, 26 miles east of Pittsburgh, Pa. The coal has been tested by many gas works, and the highest testimonials will be furnished. Communications addressed to the A. L. Massey, Philadelphia, will have immediate attention.

COLWELL & CO.,

MANUFACTURERS OF PIG IRON AND CAST Iron Gas and Water Pipes, No 207 North Water street and 206 North Wharves, Philadelphia

STEPHEN COLWELL, W. DWIGHT BELL,
THEO. TREWENDT, SAMUEL FULTON.

W. ANDERSON,

MANUFACTURER OF GAS BURNERS, NEW Haven Railroad Depot, cor. of Franklin and Elm sts., New York. Scotch Tips constantly on hand. Tips and Burners made to order. Brass Tips for street lights and other purposes made to order.

JOHN NEWKUMET,

PHILADELPHIA FIRE BRICK WORKS, VINE and Twenty-third streets, Philadelphia.

Manufacturer of all kinds of FIRE-BRICK, GAS-HOUSE TILES, to suit all the different plans in use. Clay Retorts and Dentists' Muffles. Orders filled at short notice.

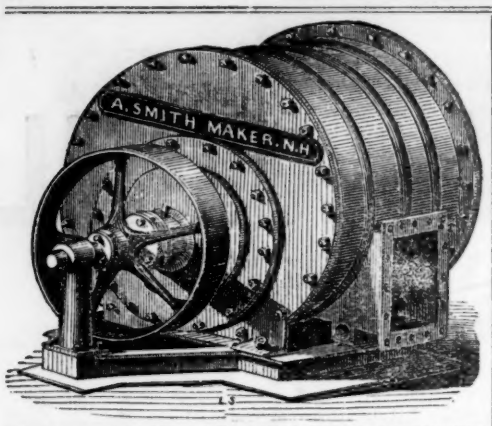
SECOND-HAND WET GAS-METERS FOR SALE. Apply to the Fishkill (N. Y.) Gas-Light Company

J. H. BRUNDAGE & CO.,

38 BURLING SLIP, NEW YORK, DEALERS IN

ROSINS ESPECIALLY ADAPTED TO GAS-MAKERS' USE.

N. B.—J. H. B. & Co. ARE CONSTANTLY PURCHASERS OF ROSIN GAS TAR.



THE ABOVE CUT REPRESENTS MACKENZIES' PATENT GAS EXHAUSTER (Force Blast).

It is offered to Gas Companies as a most perfect Machine. They are made of various sizes, capable of exhausting from 5,000 to 150,000 cubic feet per hour.

They require less power, work smoothly, are not so liable to get out of order, and cost much less than the imported ones.

Gas companies intending to use an exhauster, by stating the quantity of gas they may wish to have pass through per hour, will be furnished with a statement of the proper size, and the price of the same, on application to ADDISON SMITH, Manufacturer, New Haven, Conn., or to Messrs. ELLIMAN BROTHERS New York.

The manufacturer has the liberty to refer to the Albany Gas-Light Co., N. Y., where one has been in constant operation for many months Another one, capable of exhausting from 50,000 to 70,000 cubic feet per hour, will be in operation in a few weeks, at the St. Louis (Mo) Gas-Works.

WATERHOUSE & BOWES,

BUILDERS OF GAS-WORKS, RALEIGH, N. C. Gas-Works erected in any part of the United States.

REFERENCES:

James H. Carson,	Pres't.	Charlotte Gas-Works,	N. C.
D. G. Fowle,	do.	Raleigh "	N. C.
J. C. Smythe,	do.	Salisbury "	N. C.
Arch. McClean,	do.	Fayetteville "	N. C.
Joseph A. Waddell,	do.	Staunton "	Va.
A. G. Story,	do.	Little Falls "	N. Y.

Geo. H. Young, proprietor of Waverly, " Miss.
Wm. Johnston, Pres't Char & S. C. R.R., Charlotte, N. C.
A. B. Wood, Agt. Reading Iron W'ks, 57 Maiden l'e, N.Y.
Cornelius Baker, manufacturer of gas fixtures, Phil'a.

G. B. WATERHOUSE. M. BOWES.

A. BRONSON,

PATTERN AND MODEL DESIGNER AND MAKER, having had twenty-five years experience, will assist and perfect, for all who desire, inventions and designs. Patterns and models made of wood, iron or brass, (secretly, if desired,) on short notice.

N. B.—Stove and machine patterns of every description, made with elegance and precision.

Metallic Letters for Patterns always on hand.

102 Elm street, corner Walker street, New York.

LE JOURNAL DE L'ECLAIRAGE AU GAZ, published on the 5th and 25th of each month, in Paris. American subscriptions are received at the Office of the AMERICAN GAS-LIGHT JOURNAL, New York.

F. BUTTS & CO.,

GAS-COAL DEALERS, CLEVELAND, OHIO.—The attention of gas companies is called to the following analysis of Sterling Coal, which is mined and sold exclusively by us:

CLEVELAND, May 17th, 1859.

ANALYSIS OF "STERLING COAL."

Sp. gr.	1.288	
Hygremetric moisture,		1.85
Volatile combustible moisture,		34.15
Coke, (clear and porous,)		64.00
		100
Fixed carbon in the coke,	62.00	
Ashes, (yellowish white,)	2.00	
	64.00	

COMPOSITION OF ASHES.

Silex,	0.80
Alumini,	0.45
Sulphate of Iron,	0.85
	2.00
Percentage of sulphur,	0.28

J. L. CASSELS, M.D.,
Prof. of Chemistry, Cleveland Medical College.

P. S.—The specimen from which the above analysis was made, was taken by myself from a car load, and may be regarded as a fair average; in fact, this coal is very uniform in its characteristics. It also yielded four per cent. more gas than the Pittsburgh coal.

J. L. C.

This coal is used by the following gas-light companies, and to whom reference can be made, as to quality, &c.:

Manhattan Gas-Light Company,			New York.
New York	"	"	"
Albany	"	"	"
West Troy	"	"	"
Rondout	"	"	"
Elmira	"	"	"
Seneca Falls	"	"	"
Rochester	"	"	"
Albion	"	"	"
Oswego	"	"	"
Brockport	"	"	"
Cleveland	"	"	Ohio.
Toledo	"	"	"
Sandusky	"	"	"
Grand Rapids	"	"	Mich.
Kalamazoo	"	"	"
Ann Arbor	"	"	"
Milwaukie	"	"	Wis.

For further information, address

F. BUTTS & CO.,
Cleveland, Ohio.

GIRARD TUBE WORKS.

MURPHY & ALLISON, PROPRIETORS. Wrought Iron Coke-Welded Tubes for Gas, Water, Steam, &c. Wrought, Cast, and Malleable Iron Fittings. Steam and Gas Cocks, Valves, &c.

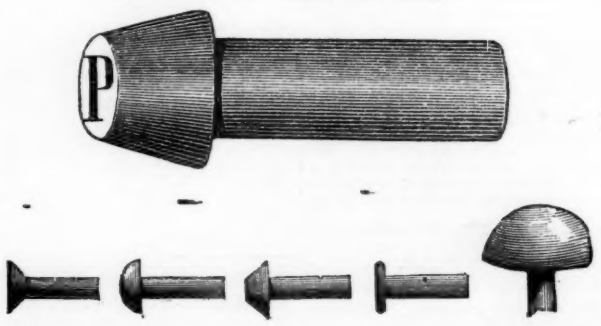
Also Galvanized Tubes and Fittings.

Office, 1908, Market street, Philadelphia.

MUSGRAVES GAS COOKING STOVES,

ADAPTED TO THE COMMON COOKING UTENsils in family cooking. For further information, address Dr. H. B. MUSGRAVE, 272 Sixth street, Cincinnati, Ohio.

RIVETS.



IRON-BRIDGE, SHIP, GIRDER, BOILER, TANK, TENDER, GASOMETER, AND STOVE RIVETS.

Railroad, Locomotive and Machine Shops, Gasometer Manufacturers, &c.,

SUPPLIED WITH EVERY KIND OF RIVET USED IN THE TRADE.

ALL WORK GUARANTEED.

Every description of Rivet used in GASOMETER BUILDING, 3-8s, 7-16s, No. 3s, No. 5s. BUTTON HEAD GASOMETER RIVETS, &c., &c., kept constantly on hand.

PHILLIPS & ALLEN,

PHILADELPHIA RIVET WORKS,

Pennsylvania Avenue, west of 22d Street.

COOPER'S GAS REGULATOR.

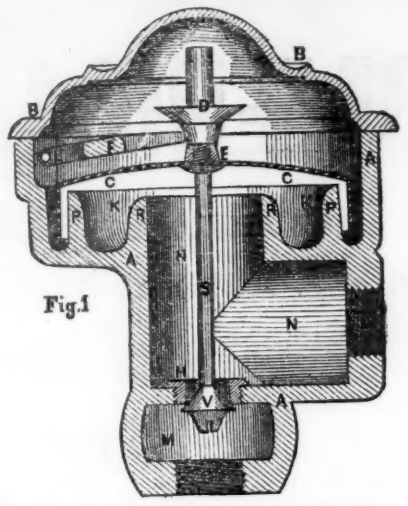


Fig. 1

THIS APPARATUS IS FOR REGULATING THE supply of gas to the burner, and for giving the *greatest quantity* of light, possible, with the *least consumption* of gas, without waste or glare of light, and without any attention, whatever, from the consumer.

It prevents all "blowing" of lights, even when only *one* is burning, with the faucet wide open, and effects a saving in the consumption of gas of from 15 to 30 per cent.

In Fig. 1, *A A A*, &c., represent the casing, or body of the instrument, over which the lid or cover is secured by screws, passing into the bosses *S S*, fig. 2.

The rim of the inverted cup, or gasometer *C*, dips into mercury contained in the annular reservoir *J J*, formed between the upper part of the casing *A A* and the flange *P P*.

The valve stem *S*, with the conicue valve *V* at its lower end, is secured permanently to the centre of the inverted cup by the cross-head or nut *E*.

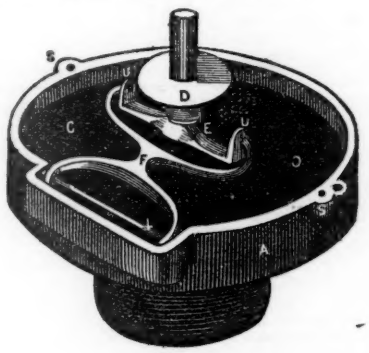


Fig. 2.

Into the perforated upturned ends *U U*, fig. 2, of the cross-head *E*, are directed the pointed ends of the guiding arm *F*; the opposite ends of this arm are loosely jointed on the axis wire *L* which is fixed in holes drilled in the sides of a recess formed in the top circle of the casing.

On the upper end of the valve stem *S*, above the cross-head, is secured the weight seat *D*, upon which weights are placed in the form of rings; common bolt washers answering every purpose.

The valve *V*, when raised, shuts against the ring, or seat *H*, which is screwed firmly in the partition, which separates the valve chamber *M* from the regulating chamber *N*.

The gas enters the valve chamber *M* from the meter, through a coupling secured in the screwed nozzle *I*, and makes its exit from the regulating chamber *N*, through the pipe communicating with the burners, secured to the screwed side nozzle *O*.

The regulating chamber *N* communicates directly with all the interior of the casing *A A*, beneath the cup *C*.

When the gas passes through *H*, it comes in contact with the under surface of the cup, tending to raise it upward.

These instruments are adapted to the standard sizes of gas fittings, and, with the ordinary couplings by which they are secured to meters, any one of ordinary ability, by the aid of the accompanying instructions, can attach and adjust them in the most perfect manner.

None of the working parts are attached to, or depend for movement or adjustment on the lid; it can therefore be removed without interfering in any way with them.

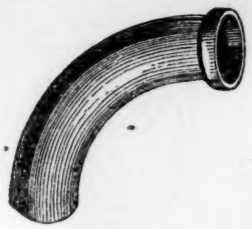
JOHN H. COOPER,
114 North Seventh street,
Philadelphia.

STEPHEN SCAMMON, GAS ENGINEER AND Contractor for the erection of Gas-Works; also, dealer in Cast and Wrought Iron Pipe for Steam, Water, and Gas, No. 561 Broadway, New York.

GAS, STEAM, SMOKE, PURE WATER AND SOIL PIPES,

CLAY RETORTS, TILES, BRICKS,

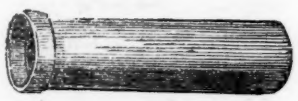
AND EVERY VARIETY OF FIRE GOODS.



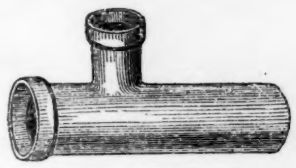
JOSEPH CLIFF,

WORTLEY FIRE-BRICK WORKS,

Near Leeds, England.



T. W. PARMELE, Agent, No. 4 Irving Place, New York.



THE AUBIN VILLAGE GAS WORKS

Are now building for the city of *San Antonio*, Texas, and for the following villages, viz.: *Greensboro'*, N. C.; *Dover*, Delaware; *Jersey Shore*, Penn.; *Flemington*, N. J.; *Bath*, Steuben Co., N. Y.; *Plattsburgh*, N. Y.; *Rutland*, Vt.; *Point Levi*, C. E., and *Gloversville*, N. Y., where they are being substituted for Rosin Gas Works.

Being adapted to any material containing gas, the AUBIN WORKS use as the gas-making material, cotton seed at the South, rosin in the Carolinas, cannel coal in Pennsylvania, and rosin and coal mixed in the Northern and Eastern States; and are so simple in construction and operation, that Gas-Companies, even in small towns, can make *a rich, and therefore cheap Gas*, and still pay dividends. Parties inquiring will be referred to towns of 3,000 to 4,000 inhabitants, using the Aubin Works, where the net earnings on the stock are from ten to fifteen per cent.

General Office of the AUBIN GAS-WORKS COMPANY,

44 State Street, Albany, New York.

TO PREVENT THE FREEZING OF GAS-PIPES.

FOR HOUSES, &C.

JOHN WALTON'S

PATENT.

Fig. 1

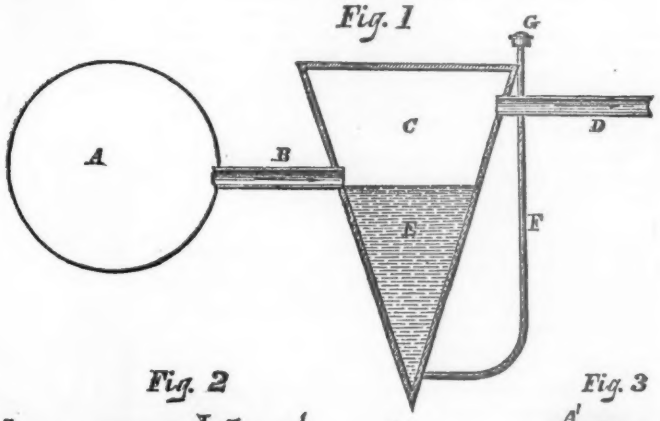


Fig. 2

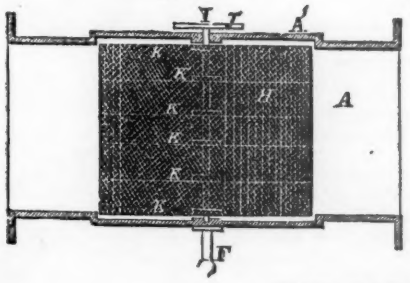
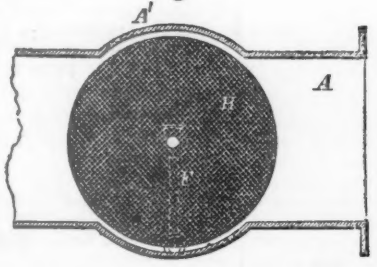


Fig. 3



FOR GAS WORKS.

FIGURE 1.—To be placed in the Street.

(A represents the street; (B) the connecting pipe; (C) the vessel; (D) the service pipe; (E) the alcohol or other liquid; (F) the pipe used to fill the vessel; (G) the cap to close the pipe.

FIGURES 2 and 3.—To be placed on Main at Gas Works.

(A) represents the main pipe; (A') an enlargement thereof; (H) a wire gauze cylinder, which is rotated slowly; the lower port of the pipe is filled with alcohol or other liquid, keeping the cylinder constantly wet; (K K, &c.,) show simple disks within the wheel; (H) to increase the wetted surface; (F) is the pipe used to fill or withdraw the liquid used:

The undersigned would respectfully call the attention of Gas Companies to his improved ANTI-FREEZER, which he guarantees to prevent the freezing of all pipes to which it is applied, at a less cost than any other known process. Further information can be had by addressing—

JOHN WALTON, Louisville, Ky.

MEDALS AWARDED TO THOMAS GLOVER'S PATENT DRY GAS-METERS.

MANUFACTORIES

SUFFOLK ST CLERKENWELL GREEN. & ALLEN ST. GOSWELL ST. LONDON

THOMAS GLOVER introduced his PATENT DRY GAS METERS into the United States and Canadas in 1846, and since that time he has received extensive patronage from many Gas Companies of those countries as well as from this. Thomas Glover confines his sole attention to the business of Gas-Meter making. The propriety of his doing so is satisfactorily proved by his success. For example: one London Company has now in use above 12,500 of his Patent Dry Gas-Meters, and some of these Meters have been fixed for fourteen years and are still in working order, without complaint from either the company or the consumer.

THOMAS GLOVER thinks it necessary to put Gas Companies on their guard against parties selling Patent Dry Gas-Meters constructed in imitation of his, but unskilfully made on erroneous principles, and with improper and unsuitable materials.

THOMAS GLOVER'S Workshops are now the most extensive in this or any other country, and he is thereby enabled promptly to execute orders to any extent required. Purchasers may, at any time, inspect his Works and the materials of which his Meters are constructed

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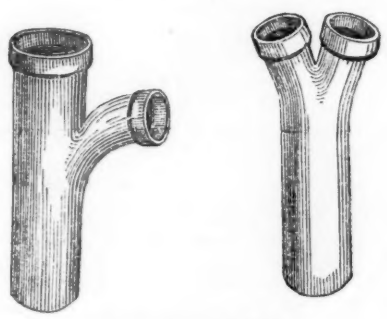

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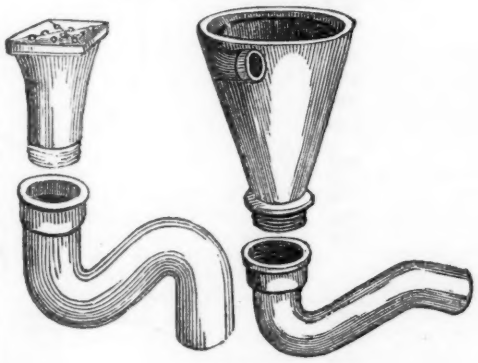

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FOR THE AMERICAN GAS-LIGHT JOURNAL.

ON THE DETERIORATION OF COAL-GAS.

(A paper read by Professor W. E. A. AIKIN, of the Maryland University, before the American Association for the Advancement of Science, at Baltimore, at their twelfth meeting, on the causes of the variable illuminating power of Coal-Gas, by Professor W. E. A. AIKIN, published in the AMERICAN GAS-LIGHT JOURNAL on the 1st October, 1859.)

THESE papers attempt to show that the irregularity in the quarterly bills of gas companies is caused by defective management on the part of gas companies, or by improper machinery used by them. The Professor says: "In common with a large number of our citizens, my attention was directed, some short time since, to a somewhat sudden, inexplicable, and enormous increase in the amount of our quarterly bills for gas consumed—an increase equal at times to an advance of a hundred per cent. over the corresponding quarter of the preceding year."

The Professor presents the evidence of Hedley to prove that gas may be injured by carbonizing coal at improper temperatures—a truism as familiar to gas-makers as that the application of heat will make water boil.

He then describes at great length his experiment with four jars of gas. This experiment proved to him that the illuminating power of gas was practically destroyed by standing in contact with a large quantity of water in his pneumatic trough—another discovery to him, but a fact familiar to all having a knowledge of illuminating gas.

The Professor says: "In my trials to determine the specific gravity of our gas, by weighing a globe previously exhausted and then filled with it, I obtained a result ranging from 0.570 to 0.580, *somewhat below that given as characterizing good gas.*"

What authority had the Professor for stating the specific gravity 0.570 to 0.580 found by him, was below that characterizing a good gas?

The truth is, that the specific gravity he has given indicates an exceedingly good gas; if the gas had not an undue proportion of carbonic oxide or carbonic acid, the gravity showed the gas to be above the average standard of cannel coal gas.

Mr. Clegg found 0.400 to be about the average of coal-gas, and that gas produced from cannel coal will average much higher; he thinks the average standard of cannel gas 0.539. I quote from the same authority the specific gravity of coal-gas, obtained from different experimenters:

Dr. Henry obtained	....	0.600, 0.431, 0.340.
Dr. Dalton "	....	0.534, 0.448, 0.410, 0.390.
Dr. Faraday "	....	0.430.
Mr. Low "	....	0.425, 0.408.
Prof. Leslie "	....	0.600, 0.410.
Mr. Phillips "	....	0.406.
Mr. Cooper "	....	0.415, 0.410.
Mr. Anderson "	....	0.650.
Mr. Clegg "	....	0.640, 0.584, 0.470, 0.410, 0.406, 0.400, 0.390, 0.380, 0.370.

The Professor's attempt at finding the comparative illuminating power of the gas by the photometer (which, by-the-by, appears to have been Rumford's shadow test) is a curious study to persons skilled in photometry. The Professor states, that during the experiment the pressure at the burner was equal to three and a half inches of water, and he adds, "*a little exceeding the ordinary evening pressure at the gas-pipes.*"

Only think of testing the illuminating power of a gas with a pressure of 35-10ths of water at the burner. Under this enormous pressure he found the gas from the street-mains equal to 10.71 candles.

The Professor says: "All that we know is that the manufacturers furnish an article which they say is the right article, and prepared in the right way, and possessing an illuminating power varying from 14 to 17 candles—that is, the engineer reports that on trial with the photometer, at stated times, the gas burning from a jet consuming 5 feet per hour, gives an amount of light equal in the average to that of 15 patent candles, 6 to the pound, the patent candle being ostensibly a mixture of spermacetti and wax. *Assuming as true all that is claimed by the manufacturers, it can still be shown that the gas, even if properly made and correctly tested, may be and is furnished to the consumer in a condition of greatly diminished illuminating power, compelling the consumption of a greater bulk to obtain the required light, and consequently swelling the record of the meter and the sum total of the quarterly bills.*" Now, this statement of the Professor in italics is mere presumption, and is not sustained in any part by his own experiments.

Assuming that one of the Professor's experiments was correctly made, and that the specific gravity of the gas was 0.570 to 0.580, it indicated a gas of such power that a consumption of 5 cubic feet per hour would have been equal to the light of 22 to 25 candles—7 to 10 candles more than the engineer claimed for his gas.

Again, assuming that the gas the Professor obtained from the street-main gave him, as indicated by his peculiar photometer arrangement with the stated pressure of three and a half inches of water, an illuminating power equal to 10.71 candles, as he states—then this same gas, if properly tested at a pressure of from 2-10ths to 4-10ths of an inch of water, would have yielded a light equal to from 18 to 22 candles, and as this result nearly corresponds with the value of the gas by the Professor's specific gravity test, we may conclude that the Professor is better skilled in specific gravity apparatus than he is in photometry.

To aid the Professor in his future photometrical experiments, we will suggest to him that when gas passes a burner with great velocity under a high pressure, a large proportion of the carbon in combination with the gas, the moment it comes in contact with the atmosphere, is consumed, the heat of the burner is very much increased, but the illuminating power of the light is diminished; at the pressure of three and a half inches of water, fully half the illuminating power of the light would be destroyed. On the contrary, when gas is burned at a low pressure, from 2-10ths to 5-10ths, the particles of carbon in the gas are not immediately consumed as they come in contact with the air, but are heated to an incandescent state, and in passing through the flame, radiate light.

The Professor seems to have convinced himself by these his peculiar experiments, that the gas he tested had depreciated, by passing through the street mains, from a gas of from 14 to 17 candle power to a gas of 10.71 candles. But these experiments fairly interpreted prove that the gas had not lost in power, but really was of higher illuminating power than the Baltimore Gas Company claimed for it. The Professor having failed to establish the facts upon which he founded his argument, that gas-bills were increased by the impoverished state of the gas, and by the general mismanagement on the part of the gas companies, we use the plural, and say all the gas companies, for in the winter of 1857 and 1858 high gas-bills were general throughout the United States.

Here we attributed the large consumption of gas to an unusually dark autumn and winter. From the latter end of October, for six weeks, in Louisville, Ky., we did not see the sun, except for a few hours one day; the population in consequence used gas-light in the morning and earlier than usual in the afternoon. This at least is more liberal than to attribute the high gas-bills at that particular season to the delinquency of the officers and employees of gas companies.

Even if the gas companies and employees had all been as scientific as the Professor himself, this Utopian management would not have relieved the public, at that particular season, from high gas-bills.

R. G. C.

Louisville, Ky., Oct. 10th, 1859.

FOR THE AMERICAN GAS-LIGHT JOURNAL.

DISCHARGE OF GASES THROUGH PIPES.

PERMIT me to suggest to your correspondent in the October number of the AMERICAN GAS-LIGHT JOURNAL, who appears to have found some difficulty in verifying certain numerical results with a formula from *Ure's Dictionary of Arts, Manufactures, and Mines*, that the formula in question cannot be obtained from the proportion to which it has been referred. The proportion

$$200 : k :: \frac{1}{144\sqrt{250}} : \frac{d^2}{\sqrt{l}}$$

gives

$$d = \frac{k\sqrt{l}}{455{,}000};$$

or

$$d = \sqrt{\frac{k\sqrt{l}}{455{,}000}};$$

and this verifies the tabular numbers given by Dr. Ure.

But allow me to raise a question as to the practical utility of a *formula of discharge* which ignores the essential dynaminal cause of discharge. Admitting the correctness of the laws assumed in Dr. Ure's article discussing this point, and waiving all criticism of his logic, still, the formula only compares the flow of gases through different pipes, under the same *pressure-head*. Of course the formula, as such, is not capable of giving the true discharge for any given pipe; for this would be as variable as it would be possible to vary the driving pressure—the necessary cause of motion in any case.

Again, in addition to the pressure, the density and temperature of the gas are elements practically influential upon the discharge, especially in view of the essentially variable value of these elements in practical cases. Thus, every thing else being the same, a heavy rosin or oil-gas, with a specific gravity of 0.9, would flow with only two-thirds the velocity of a light coal-gas, whose specific gravity is 0.4; while the same gas, at the temperature of melting ice, flows with ten-elevenths the velocity that it does at a temperature one hundred degrees higher.

A formula of discharge, properly so-called, should take account of these several elements, which, after all, are but the physical data characteristic of the fluid undergoing discharge. Such a formula, while it might be more rational, need not, necessarily, be any the less practical.

The *motion of gases*, considered in its relation to gas-lighting, warming, and ventilation, is a subject of sufficient practical importance to warrant a more extended notice and, should it be deemed expedient, the writer may return to it hereafter.

GLENMORE.

FOR THE AMERICAN GAS-LIGHT JOURNAL.

WATER GAS.

HEMPSTEAD, N. Y., Oct. 13, 1859.

I NOTICE a luminous article in one of the papers in regard to water gas. As your JOURNAL is devoted to the subject of Light, I think your readers would like to know how the water gas compares, in point of economy, with coal gas. I have experimented somewhat with water gas, and do not think it is possible to manufacture it for less than five times as much as coal gas. What advantage will it be to the gas company or consumers to use water gas? The gas company would require a chemist and engineer beside the firemen, and would burn out six retorts in making water gas to the one they use now. Water has done a great deal for navigation, but, in my opinion, the "beautiful" gas-light obtained in Wilmington was from the rosin and charcoal, and not to any extent from water.

CARBON.

FOR THE AMERICAN GAS-LIGHT JOURNAL.

COOKING BY GAS.

LONDON, 24th Sept., 1859.

I DO not notice that cooking by gas has been introduced in America; perhaps the relative prices of fuel and gas, as compared with England, is against it. Especially for temporary uses of fire, gas is often the cheapest.

I find, by experiment, that 28 ounces of water (three breakfast cups) can be raised from 57 to 212 degs. (the boiling point) by one and a half feet of gas, which, at 5s. 6d. per 1,000 feet, costs one-tenth of a penny; a leg of mutton weighing 7 lbs. is cooked by 20 feet of gas; a sirloin of beef weighing 10 lbs. by 25 feet of gas; and in cooking by gas, the *weight* of cooked meat is more than when roasted before a fire, in the proportion of 14¼ ounces to the 16 ounces of raw meat, as against 13½ ounces if roasted before a fire, while the dripping is always clean. Many of our large London shops cook by gas alone, for from 150 to 250 individuals daily. Gas is sold at 4s. per 1,000 feet, of specific gravity 4—air being 10. We also heat offices, bed-rooms, halls, and a variety of places where chimney flues are objectionable, and our churches have frequently gas stoves underneath the floors. Indeed, every year gas is supplanting coal; and were it not that we love the sight of an open fire, it would do so much faster.

A.

For the American Gas-Light Journal.

THE PRESSURE OF GAS-HOLDERS.

October, 1859.

Below I hand for publication a table of the units of weights of gas-holders from ten to fifty feet diameter—that is, their respective weights, to afford pressure equal to that of a column of water one-tenth of an inch in height. The matter may be considered as trivial by some of your readers; but, in order to fulfil its proper duties, the American Gas-Light Journal must place within the reach of managers of the small gas-works, concise rudimentary data, and it is at the request of one of this class that this communication is written.

I have, as usual, although the figure is only approximately correct, assumed the weight of a cubic foot of fresh water to be 62.5 lbs. avoirdupois.

Diameter of Holder.	Weight for every one-tenth of an inch pressure.
10 feet,.....	41 lbs.
15 "	92 "
20 "	164 "
25 "	256 "
30 "	368 "
35 "	501 "
40 "	655 "
45 "	828 "
50 "	1,023 "

1. To ascertain the weight of a gas-holder, when the diameter and pressure are given, multiply the unit of weight corresponding with its diameter by the number of tenths pressure.

Thus: If it be required to ascertain the weight of a holder 35 feet diameter, and which gives 22-10 pressure, the answer is 501 ⋈ 22 = 11,022 lbs.

2. To ascertain the pressure given by a gas-holder of ascertained diameter and weight, divide the weight (in pounds) of the holder by the unit of weight corresponding with its diameter.

Thus: Required the pressure due to a holder 25 feet in diameter, and weighing 6,000 lbs.

Ans. 6,000 ÷ 256 = 23½ tenths, *nearly.*

These figures are obtained as follows: The weight of a cubic foot of water is 62.5 lbs. If, instead of being 12 inches, this column of water were only one-tenth of an inch high, its weight, or effective pressure, upon its square foot of area, would only be the 120th part of 62.5 lbs., or .52083 lbs. Now, the area of a circle is to the square of its diameter as .7854 is to 1; and hence, the weight of a holder (in pounds) to give one-tenth of an inch pressure, is to the square of its diameter (in feet) as .52083 ⋈ .7854 is to 1, or to say, as .4091 is to unity.

Hence, letting d represent the diameter in feet,

p " " pressure in tenths of an inch,

w " " weight in pounds,

we have for the value of p, in terms of d and w,

Equation 1. $$p = \frac{w}{d^2 \times .4091}$$

and for the value of w, in terms of d and p,

Equation 2. $w = d^2 p \times .4091$.

I was glad to notice in your last issue the elaborate article on photometric manipulation, which my previous communication served to elicit from your able correspondent, and my old friend, T. W. P.* He is, probably, as able a photometrist as any in the country, and will, I hope, have something to say about the experiments and deductions of a learned Professor while dilating on his favorite theory of the depreciation of coal-gas.

Your article upon a national gas-light association sets forth a scheme, whose advantages cannot be long ignored; and its advocates may rely upon my hearty co-operation. I will endeavor to send you, ere long, substantial proof of my interest in it. J. R. S.

* Our photometric correspondent is Theodore W. Parmele, Esq., a young gentleman of superior attainments, and largely engaged in the importation of gas-coals, retorts, exhausters, &c., as his various advertisements indicate.—Ed.

For the American Gas-Light Journal.

WATER GAS AGAIN.

Every month or so, the gas-light companies throughout the Union are startled, (especially in the rural districts, where the consumption is small, with corresponding profits,) by the cry, "What is to become of you now? They are making gas, in such and such a place, out of water, or air, (or *moonshine*, or *something else, which costs nothing*, and selling it for less than the price of the paper upon which the bill is made."

The small capitalists, store-keepers, and others who have invested their savings in gas-light stock, tremble in their shoes for a while, and wait with resignation for the development of the dreaded crisis that is to engulf them in ruin. But, somehow, it never comes.

An eminent civil engineer once asserted that the only proper use of rivers was to feed canals. The experience of the last quarter century, and daily discovery, go far to sanction the assertion that, in the creation of the vast fields of bituminous coal throughout the world, Providence only intended to supply us with artificial light. There are innumerable substances which yield inflammable and illuminating gas; but their practical use for such purpose depends entirely upon the commercial value of the raw material, its products and cost of production; and until some natural product can be found in larger quantities, more abundant in yield, obtainable at a cheaper rate, and costing less in the process of manufacture than bituminous coal, there is not much likelihood of coal gas-works being abandoned. No experiment has yet been tried successfully to make illuminating gas out of water, air, or moonshine alone. But partial success in the laboratory has led chemists and engineers to conclude that by the decomposition of coal tar in conjunction with water—by the increase of bulk in resin or oil gas by its dilution with hydrogen, or by hydrogenating the richer hydro-carbons of cannel gas, the cost of gas on a large scale might be reduced without detriment to its quality. It is needless to say that, so far, all attempts to effect this desideratum have failed, not through difficulties of a chemical or mechanical nature, but solely from want of value in a commercial point of view. With increase of bulk, the gas has sustained more than a corresponding loss in illuminating power, or, as shown in experiments upon a working scale with White's Water Gas in England, the fuel alone for the manufacture of the water-gas costs more than coke and coal together for the production of an equal or equivalent quantity of simple coal-gas.

Whether the difference in the relative prices of coal and resin in some sections of the United States, compared with the relative prices of the same materials in England, will make the experiment successful here or not remains to be proved; but with a difference of 250 per cent., as shown there in favor of coal, I think the present investments in coal works may be considered safe.

J. G. H.

For the American Gas-Light Journal.

THE CARBON GAS FIRE.

Crystal Palace Gas-Works,
Sydenham, Kent, England,
September 19th, 1859.

Several patents have been taken out for gas fires in open grates, the patent being for the *material* used, such as "pumice," "asbestos," the material called the "polytechnic fire," lump asbestos, and other material, the use of which is very limited, in consequence of the expense. The "lump asbestos" is valued at a guinea a pound; and the "polytechnic fire" material, although not so expensive in itself, requires more gas to get up a red heat; it also becomes very brittle by use, so that when taken out of the grate to clean the gas pipes, (the holes requiring broaching occasionally,) it breaks in pieces, destroying the effect intended. Finding this to be the case, and yet anxious to introduce gas fires, I have been trying experiments with material of various kinds, and have succeeded in producing a gas fire superior, I believe, to any yet introduced. I have taken out no patent for it, that all gas companies, whose interest it is to introduce gas fires to the public, may do so at the cheapest possible rate. The material I find best suited for use is the carbon, removed by the process called scurfing, from gas retorts. It should be broken up in lumps of about two and a half or three inches, and piled in the grate by hand, not thrown on in a mass. I find this material absorbs the gas, and causes a perfect combustion, making an excellent fire, and throwing out a great heat, with a less consumption of gas than any other material. Gas companies can sell the carbon at 2s. 6d. per bushel, ready broken, so that the cost of material will be trifling, one bushel lasting from three to six months, according to the heat required.

Magnus Ohren,
A. J. C. E.

University of Maryland, Oct. 18, 1859.

To the Editor of the American Gas-Light Journal:

Dear Sir,—Permit me to suggest that you are slightly in error where you speak, in your last No., of "a noticeable difference of opinion" between my friend Prof. Torrey, of the Assay Office, and myself, in relation to the injurious action of water on coal-gas; and I feel more desirous to be set right in this matter since Prof. Torrey's valuable services as consulting chemist for many years past, to some of your gas companies has given him eminent opportunities for a familiar acquaintance with the subject.

In the Professor's experiments Nos. 1 and 2, the water employed was already saturated with all, in the gas, that it could dissolve, and therefore the loss was less than in my experiments, where the water was not in the same condition. The experiment No. 3 apparently confirms all my results. There the circumstances were similar, and there the water removed more than one-third of the olefiant gas originally present, leaving the illuminating power, originally equal to 16 candles, so fully impaired that the light value of the pale, bluish flame obtained was not, apparently, worth measuring. I need hardly say that while I entirely coincide with my friend's proposition that "a certain quantity of water cannot deteriorate coal-gas to an unlimited degree," I cannot avoid the conclusion that the injurious action of water is one of the principal agencies at work in furnishing gas of variable quality.

Respectfully, &c., William E. A. Aikin.

For the American Gas-Light Journal.

"A SO-CALLED AMERICAN JOURNAL."

If the quidnunc who penned the paragraph on "Passing Events" in a "so called English journal," in which he shows "the carelessness of our trans-Atlantic brethren in their philosophical observations," had either read or reported the whole of what is said by Dr. Smith on the temperature of the Louisville Artesian Well, he would have discovered that while at Paris the increase of temperature is 1° for 61 2-12 feet depth (below the influence of meteoric causes), at Kentucky it is 67 feet for each degree—a difference far less than he will find recorded in every systematic work on geology as characterizing the temperature of wells. It is worth while to remark that this journalist esteems it worth mentioning in a chronicle of *passing events*—as a piece of news—what was published here in February last! The whole thing appears lugged in for the luxury—so dear to John Bull—of having something to grumble at.

O.

No doubt the editor of the s.-c. E. journal considers the artesian well at Louisville a *great bore.*—Ed.

For the American Gas-Light Journal.

1. Is the entire of coal-gas volatile?

2. Why, in distilling napthalous products from coal-tar, is a residuum left, which is so little volatile that it will suffer decomposition rather than evaporate?

3. Is the solid part of coal-tar actually distilled with the gas or subsequently formed by combination with substances which are really volatile?

Will any of our friends do us the favor of giving us their ideas on these important subjects?

Camden, N. J. W. H. C.

THE HORRORS OF BURNING FLUID.

We commence to-day the list of horrible accidents from the use of camphene and burning fluid. How is it that men manage to never get burnt by this infamous thing, but that it is always the women who suffer from its horrors? Let the men get singed once or twice, and a howl would go up long enough and loud enough to reach the legislative halls, and secure instant prohibition of its use. One might as well kindle a fire with gunpowder because it is composed in part of charcoal, as to burn camphene because it emits a flame. Neither should be entrusted to the hands of women or children.

Two of its Victims.—Coroner Jackman held inquests, at the New York Hospital, upon the remains of Ann Ryan and Elizabeth Selby, two servant girls, who died on Monday night, Sept. 5, from the consequences of carelessly handling burning fluid. In the former case, the girl attempted to fill a lighted lamp, which exploded in her hands. In the latter instance, the deceased attempted to expedite the kindling of a fire by pouring a quantity of the inflammable liquid on the wood.

Two More.—Mrs. and Miss Elizabeth Pascall, the mother and daughter who were so severely injured on Thursday evening, Sept. 8, at No. 345 Eighth avenue, died the morning following. At an inquest the evidence showed that Mrs. Pascall and daughter, at the time of the accident, were pouring camphene into the crevices of a bedstead. A lighted lamp held too close to the liquid, ignited and caused the can to explode, setting fire to the clothing of the two ladies, and also to the furniture. The faces of both were completely charred, and their tortures were excruciating until death relieved them. The mother was fifty-nine years of age, and the daughter twenty-five.

Still Another.—Mrs. Catherine Stringer, No. 239 Third street, was severely burned on the night of September 16th, by the explosion of a lamp which she had just lighted, and then attempted to fill with burning fluid.

Another Victim of Burning Fluid.—Mrs. Adelaide Schumann, a married woman, seventeen years of age, died a few days since at No. 121 Ridge street, from the effects of severe burns. Last Friday afternoon, while taking two fluid lamps from the mantel-piece, one slipped from her hand and broke upon the stove, igniting her garments.

Another.—Mrs. Sullivan and her daughter, a little girl two years old, residing at No. 612 Water street, were severely burned last evening by the explosion of a fluid lamp.

Serious Gas Explosion at Limerick, Ireland.—*A Terrific Explosion of Gas at the Residence of Lord Limerick, near Limerick, on 15th Sept.*—Owing to the carelessness of workmen employed in cementing a service pipe with the main, the servants' hall became filled with gas, when a person entered with a lighted candle, and a thundering explosion took place, shaking the edifice to the centre, and doing considerable damage. Lord Limerick had shortly before left the library, where the shock was quite severe, and would probably have killed him had he remained there ten minutes longer.

ANSWERS TO CORRESPONDENTS.

S. T. L., of Texas.—*Gas pipes should never be laid on a dead level, but on an inclined plane, and with bends —not elbows. A drip or stopcock should be inserted at each bend to emit the water; but before opening it, shut off the gas at the main.*

E. L. W. of Ill.—*We think coal-scoops very useful; our city companies find them labour-saving, and a great relief to the poor fellows who used to shovel coal into the retort. We do not know their cost, but you can ascertain by writing to the manufacturers.*

N. T. W. of Mass.—*You had better give up that experiment. Coal gas, not purified, cannot be burnt safely. It emits a suffocating odor, highly offensive and injurious to health, owing to the oxygen of the air uniting with the sulphur burnt with the gas.*

P. S. C. of Mo.—*We are expecting the new edition of Clegg by every steamer, and have written again for it. We have several orders for it, and will forward your copies on day of receipt. Your remittance is correct.*

Old Fogy, of Pa.—*From your questions we judge your* nom de plume *quite appropriate. We answer them by referring to our advertising columns. The apparatus you want you will find there advertised by several makers. Write to them.*

Builder, of N. J.—*Our October number gave the experience of several gas companies with Roman cement, and of others with lead. The peculiar nature of your soil must be taken into account before deciding.*

Student, of San Francisco.—*Your intelligence and determination have won our admiration. Persevere, and you will become a successful chemist and engineer. Are you not mistaken in the process of detecting carbonic acid gas? Twenty-five drops of sulphuric acid in one ounce of distilled water impregnated with gas, will disengage it.*

Enquirer, of Me.—*There are nearly* 1,000 *gas-works in Great Britain—we mean public gas-works. Some are chartered by Act of Parliament, and some not.*

S. F. T. of Pa.—*We know of no safety-burner "to prevent the gas-light being extinguished in case of a sudden diminution of the pressure at the works." There is, certainly, room for an invention af this character; for many lights are kept at night at a low flame, which are apt to be extinguished by the cause named, or by a slight draught of air.*

P. D. X. of Cal.—*There is great difference of opinion as to the perfection of sewerage in London. Ours in New York is, perhaps, a safe standard.*

Main Pipe, of Va.—*There is nothing to prevent your town being supplied with water from the lake, at ten miles distance. Iron are the best pipes, but the vitrified clay are cheaper. We deserve your criticism, but will do more for water in future.*

M. F. of R. I.—*The turbine was invented by a Frenchman named Fourwargon, and is said to realize* 87 *per cent. of the power expended. It operates successfully in raising water with a 9-inch fall. It is merely a horizontal water-wheel, top-shaped, in the center of which the water enters all the buckets at once, diverging from the center in every direction.*

S. L. C. of Md.—*An American water-meter has been invented by B. S. Church, of Manhattanville, N. Y.*

P. B. F. of O.—*A superior quality of piping, made of the "Terro Metallic" of which you speak, has been and is still made in England. It differs materially from the glazed stone ware, being of the same quality as that used in making fire brick, and has an extreme density, with a very durable glaze upon its surface.*

BURSTING OF THE CROTON-WATER MAIN.

Our more cleanly disposed citizens were somewhat shocked on the morning of Friday, October 21, by the necessity of substituting a "dry polish" for their accustomed Croton-water bath. It appears that the Street Department, in excavating the Fifth avenue above the Reservoir, had blasted huge pieces of rock and rolled them upon the naked mains, which gave way under the unequal pressure, and poured their limpid treasures promiscuously over the northern part of the island, among the unwashed Democracy. All the steam-engines and factories were at once stopped, and private drinkers put on short allowance for a day or two, when our energetic Chief-Engineer Craven reported the chasm bridged, and the excuse for resorting to other *measures* is now removed.

TO U. S. CONSULS.

We will feel obliged by any information or suggestions from our consuls on the subjects of which we treat, and respectfully solicit their communications. The State Department has enabled us to send each one copies of the American Gas-Light Journal.

George Wright & Co., Liverpool.—This firm sell a large amount of English gas-coals annually to the American gas-light companies. See their advertisement.

Mackenzie's Gas-Exhauster.—We desire to call attention to Sabbaton's modification of Mackenzie's Force Blower, advertised on page 74. As an admirable Gas-Exhauster it has no superiors.

THE WILMINGTON (DEL.) WATER-GAS.

The gas-world was startled early on Monday, October 4th, by the appearance in the morning papers of the following telegram:

"Manufacture of Gas from Water.—*Wilmington, Del., October* 2.—The City Gas Works invited a large party yesterday to witness the manufacture of gas from water, as a substitute for coal-gas. The demonstration was in every way satisfactory, the light being very pure and brilliant."

Having received no notice of any public experiment of this nature, we were unable to answer the inquiries on the subject that poured in upon us, until the arrival of the Philadelphia mail on the 5th, when the papers came in filled with glowing accounts of the complete success of the experiment. Among them was the following report from the *Philadelphia Press:*

"Water Gas at Wilmington.—On Saturday evening, the neighboring city of Wilmington was splendidly lighted with gas made from water, under the patent of Professor Sanders, of Cincinnati. The charges were drawn from the retorts; the supply of coal-gas was turned off; the water gas was run through the pipes, and Wilmington had a light thrice as brilliant, thrice as pure, as any it had ever known before.

"The operation was observable to the citizens of Wilmington in its results, while its practical working was witnessed by several journalists, many inhabitants, and some parties who are actually interested in the production of coal-gas. Among these last were the Superintendent of the Philadelphia Northern Liberties Gas Works, and the President of the Financial Board of that Company. . All agreed it was a decided success

"The theory of Sanders's process is this: Water, as steam, is decomposed by being passed over red-hot charcoal, and the resulting gases (hydrogen, carbonic oxide, and light carburetted hydrogen) are chemically combined with heavy carburetted hydrogen, or light-giving gas, by the decomposition of rosin or coal vapor, simultaneously with, and in the presence of, the decomposition of the vapor of water. At Wilmington gas works, are now three water-gas retorts, aggregating only one-twenty-seventh of the cubical area of their coal-gas retorts, yet more productive than the whole of their present coal-gas apparatus, making one thousand two hundred to one thousand eight hundred feet per hour. The gas manufactured is superior in color and strength of flame to that produced from coal. Rosin is used as the carbonizing element requiring from twenty-five to forty pounds for every thousand feet of gas, which is free from sulphur or nitrogen, and has an odor rather agreeable than otherwise.

"Will it *pay?* The price of coal gas in New-York is $2 50 per thousand cubic feet. In Philadelphia it is $2 25 for the same quantity. The cost of making 1,000 cubic feet of such water-gas as illumined—we might say as illuminated—Wilmington on Saturday ranges from thirty to fifty cents per cubic foot. Rosin alone need not be the basis, for Sanders's process covers the use of bituminous coal, lignite, or any of the multitudinous forms of hydro-carbonaceous material. There need be no expensive erecting of large gas-works, and the gas produced makes neither a bad smell nor 'blacks.' The gas itself, by a simple adaptation, actually can make red hot the charcoal, which assists in decomposing the water which supplies it! The *Great Eastern*, in point of fact, might be lighted with water-gas made on board, and have the heat thus generated used in lieu of coal for her engines.

"The quantity of coal-gas annually used in the city of Philadelphia, is estimated at 6,000 000 cubic feet, for which the public pay $13,200,000 per annum. (*Whew!* $2,200 *per* 1,000 *cubic feet!*) Say that the water-gas be supplied at $1 per 1,000 cubic feet, and our public save $7,500,000 for light alone every year. New-York, it is estimated, consumes twice as much coal-gas as Philadelphia. Therefore 12,000,000 cubic feet now costs $30,000,000. (*Worse yet!* $2,500 *per* 1,000 *cubic feet! Oh, New York! Oh, Manhattan!*) Should the water-gas be substituted, the saving would be $18,000,000 a year.

"We shall certainly return to this subject, of vast public and pecuniary interest, when our columns are less crowded, and when we are a little dazzled by the remarkable results of science put into practice."

All this is very fine, though the statements are not entirely accurate, the figures representing the cost of coal-gas in New-York being several millions out of the way, the writer evidently knowing nothing about his text.

Philadelphia consumes annually about 500,000,000 cubic feet, which at $2 25 per 1,000 feet cost...	$1,125,000
New York consumes about 1,250,000,000 cubic feet, which at $2 50 cost...	3,125,000
Total for the two cities.....	$4,250,000
According to the *Philadelphia Press* the cost of the two cities is.....	43,200,000
Making the insignificant error of.....	$38,950,000

The *Delaware Gazette*, of 4th October, published at Wilmington, the scene of the alleged brilliant triumph copied the above report, most discourteously diluting the dose, by the following editorial remarks:

"Neither the *Press* nor the people of Wilmington knew anything about the experiments spoken of above. But upon inquiry we learn that the experiments did take place; they were not, however, attended with the success above attributed. The light on the evenings of Friday and Saturday was duller than usual—the smell was disagreeable, and the only mention made of the gas or the light by our papers was an inquiry whether it was made of pole-cats. The managers of the gas-works here were not very favorably impressed with the experiments; nor do they believe that it can be produced so cheaply. We regret that there is so little truth in the above article from the *Press*."

The idea of *gas made of pole-cats!* Verily the *Delaware Gazette* doesn't "spare a friend to spoil a story." We print the statement precisely as it comes to us, without expressing an opinion on a subject of which we have no personal knowledge. Everybody knows the result of water-gas experiments hitherto, but although they have failed, it would be rash to say that no subsequent discoveries can rescue the principle from inevitable death.

The Wilmington Gas Company have refused to permit any further experiments to be made at their works this winter, and although we requested permission to designate two scientific gentlemen to witness the process at Philadelphia in time to report the result in this number of the American Gas-Light Journal, we were informed that it would not be convenient to the managers there. We are promised, however, that ample experiments shall be made, early in November, at some gas-works in this State, when a detailed report will be prepared by competent chemists, and published in our next number, until which time we recommend to the believers in coal-gas to not suffer sleepless nights in anticipation of the result.

We must do the gentlemen interested the justice to say, that they came on from Philadelphia to see us after the experiment, and expressed every desire to have their process thoroughly tested near this city—and they say it will be done.

(From the *London Monthly Magazine* for October, 1814.)

BUTTS OF GAS FOR EXPORT!

It affords us the higest satisfaction to be able to state that the first of practical modern discoveries—the means of illuminating by the gas of coal—proceeds in its application with all the success that can be desired. A new establishment has been opened in Worship street, in addition to that in the City Road, and both manufactories are constantly employed in evolving gas, which is preserved in butts like beer, and sent for use to any distant place at which it is intended to be consumed. Many hundred butts, besides large reservoirs, have been thus manufactured during the summer and kept in store for the winter. Already above a mile of the public streets is enlightened by this means, besides the Houses of Parliament and many public buildings. The beauty and brilliancy of the light exceed the powers of description, and can be understood only by being witnessed.

Fancy butts of gas being toted round the country like lager!

The American Gas-Light Journal in the Far West.—By the Overland Mail we received a subscription from Portland, a rising town in the extreme northwestern corner of Oregon Territory, where the Columbia river enters the Pacific Ocean; also, a batch from various parts of California, with a promise from one enterprising firm there of two hundred additional subscribers by the middle of December "to eat our Christmas dinner upon"—a feast worthy the Lord Bishop of New South Wales, immortalized by Sidney Smith, who congratulated his lordship on his appointment, expressing the hope that he might have a good digestion, as his breakfast would generally consist of a cold man on the sideboard.

From England and the continent of Europe we have likewise received a number of subscriptions from gas-light companies and engineers—some accompanied by kind, flattering letters, one or two of which we publish.

Consumption of Coal at English Gas-Works.—It is estimated that the manufacture of gas in England absorbs 10,000,000 tons per annum, and that England alone could furnish enough coal for the whole of Europe for 4,000 years to come.

N. Y. Illuminating Gas Company.—We have witnessed successful experiments at this company's office, and are informed by Mr. Stetson, of the Astor House, that the plan has operated there most satisfactorily. They advertise on another page their readiness to sell State rights.

GAS-LIGHT-INGS.

ADRIAN, MICH.—Earnings have been six per cent. per annum since commencement, and applied to extension.

ALBION, N. Y.—A ridiculous law-suit has been commenced against this company by a neighboring owner of real estate for the full value of his property, claimed to be ruined by the smoke and smell from the gas-works. That individual should be boarded next door to the gas-works in this city during the summer months to cure his litigious propensities. He will have the luxury of paying his costs, and he should then petition for ha'penny-dips and horse-boats.

"Hung be the heavens with black and smoky lamps,
Evolving soot and stench, with fishy oil
At three-and-six per gallon. Turn off the gas
Of thirteen candle splendor—off! I say—
And put this recreant Albion and her burners
Into a state of everlasting darkness."

ALLENTOWN, PA.—Gas-works originally built by Dr. Wm. F. Darrowsky upon a small scale, and proving successful, he obtained a charter; and the demand increasing, the works were bought by Wm. H. Blumer & Co., bankers, who now own and control them.

ALLEGHENY, PA.—This Company are building new works, their present location being unsuitable and their works insufficient for the increased demand.

ANNAPOLIS, MD.—St. John's College numbers 100 burners, and the State Legislative Halls, Executive Chambers, Court Rooms, &c, 300 burners.

BROOKLYN, N. Y.—The Citizens' Gas Light Company have elected the following board of directors: W. P. Libby, Wm. Spencer, Edward Anthony, Hervey Warren, Joseph C. Johnson, Effingham H Nichols, James H. Stebbins, John H. Smith; W. P. Libby, President; James H. Stebbins, Treasurer; Hervey Warren, Secretary. The capital of the company is $1,000,000, of which $700,000 is reported subscribed, and the company are proceeding to erect works.

CHICAGO, ILL.—Have now 115 retorts in use, but have arches ready for nearly 200 more, which will soon be in use. A new company called the People's Gas-Light Company has organized here, and is proceeding to erect works, but they do not seem inclined to say much about their movements.

COLUMBIA, PA.—Write "as soon as we can do so properly, we will give you all the information about us, as we fully approve the propriety of making the details of the different companies public for the benefit and information of all."

FIFTH AVENUE HOTEL, N. Y.—This hotel has not been obliged to abandon its works and receive its supply from the Manhattan Co. gas-pipes as reported We believe the discharge of ammonia water gave them some trouble, but it is now remedied, and the works are in fine order.

FREDERICKSBURG, VA.—This town needs a little northern quick-silver in its administration. No public lamps!

FREDONIA, N. Y.—Lighted by natural gas issuing from a rock, pure as the source whence it comes; needs no retorts, no cleansing. Builder of the works, THE GREAT ARCHITECT OF THE UNIVERSE. We are promised a history of these interesting and eccentric gas-works.

GAS-LIGHT IN THE SANDWICH ISLANDS!—The enterprising firm of Withered & Tiffany, San Francisco, Cal., are erecting gas-works at Honolulu, (shade of Captain Cook!) under an act of incorporation from the Hawaiian Government, with a monopoly for fifteen years, at a maximum price of $15 per 1,000 feet, all of the material imported free of duty. The Honolulu *Commercial Advertiser* of July 14th, says: "We notice with pleasure that the fixtures for lighting the new Odd Fellows Hall with gas, are already being constructed, under the supervision of the energetic management of W. H. Tiffany, Esq. It is the intention of the company to immediately break ground for the construction of the works, which are to be erected near the corner of Maunakea and King streets, on the site known as the Burdick premises, a location peculiarly eligible for the purpose. The well known go-ahead character of the company leaves no room to doubt that the work necessary to be prepared, in order to have our town lighted by gas the coming fall, will be executed with all possible dispatch, and we trust that the introduction of gas here will be alike profitable to the company and beneficial to the public. There is no other artificial light that can be compared to gas-light, and the cost is less than one-half of that for light produced either by oil or candles, to say nothing of the economy attending it, and the greater security from fire."

HUNTINGDON, PA.—Gas lighted in these works for the first time on Saturday evening, Aug. 27, 1857. Mr. Africa's report is a fine specimen of chirography and of business ability.

JANESVILLE, WIS.—We shall be obliged to take this company in hand. They have good works in a growing town, increasing consumers at a fair price, and yet they are throwing away their chances by internal dissensions between two boards of directors, and duplicate officers throughout. It appears that from 1855 to the present time, as we are informed, Shuball W. Smith, Wm. W. Holden, Benjamin F. Pixley, O. W. Norton, and R. B. Trent have claimed to be and are still acting as directors (Smith, Holden, and Pixley having had the management, and Norton and Peet saying little and doing less). Smith has been and claims to be still the president, Pixley treasurer, and Holden secretary. It appears further, that since about May 1st, 1859, Sanford A. Hudson, Morris C. Smith, Ensign H. Bennett, Wm. McLoon, and James H. Lockwood have claimed also to be the directors of the company. Timothy Jackman and Edward L. Dimmock are in possession of the works, and carry them on as lessees of the "regulars," or first list of directors. Now, this is "a very pretty quarrel as it stands," and we do not wonder that there should exist a desire to put out of office a set of men who violate their contracts as coolly and systematically as president Smith and this Board have done in reference to their mortgage coupons. In an action commenced by the latter Board, who are stockholders and highly respectable citizens, against the former, who have steadily refused to allow any examination into their affairs, even from the stockholders, the Circuit Court granted an order giving possession of the works to the latter Board; but the former have appealed, and retain control meanwhile. The new Board will, sooner or later, obtain possession, when an investigation may show what has become of some $20,000 known to have been divided between *somebody* in the old Board and certain contractors, and an alleged issue of bogus stock which enables certain of the old Board to retain their places. We are preparing a pill for this concern that will purge it of the repudiating elements that clog its corporate bowels, and wish to communicate at once with the bondholders in reference to the future payment of coupons, in which our friends are interested.

SANTIAGO DE CUBA.—Gas-works are being erected here, but in what state of forwardness they are we have not yet ascertained.

SCIENTIFIC STAFF OF THE AMERICAN GAS-LIGHT JOURNAL.

WE have the pleasure to announce that the following scientific gentlemen will be regular contributors to the AMERICAN GAS-LIGHT JOURNAL:

Professor W. E. A. AIKIN, of the University of Maryland, Baltimore.

CHARLES T. CHESTER, Electrician, on subjects connected with gas-lighting by the electric-spark.

Professor JAMES R. CHILTON, Analytical Chemist, New York City.

Dr. CHAS. M CRESSON, Assistant Engineer, Gas-Works, Philadelphia.

Professor A. K. EATON, Analytical and Consulting Chemist, New York City.

Professor HENRY L. EUSTIS, Professor of Chemistry and Physics at Lawrence School, Harvard University, Cambridge, Mass.

Professor F. A. GENTH, Analytical Chemist, Philadelphia.

Professor WOLCOTT GIBBS, Professor of Chemistry and Physics in the Free Academy, New York City.

B. FRANKLIN GREENE, Civil Engineer, Director, &c., of the Glenmore, N. Y., School of Engineers.

Professor A. A. HAYES, M.D., Consulting Chemist and Assayer to State of Massachusetts, Boston.

Professor JOSEPH HENRY, Secretary of the Smithsonian Institution, Washington. D. C., discoverer of the principle of Electro-Magnetism, as applied to the telegraph.

Professor CHARLES R. JACKSON, Assayer to the State of Massachusetts, Boston.

Professor JAMES J. MAPES, late Professor of Chemistry and Natural Philosophy in the National Academy of Design, and Professor of Chemistry as applied to the Useful Arts, in the American Institute, N. Y.

Commander M. F. MAURY, U. S. Navy, Superintendent United States Observatory, Washington, D. C.

Professor JAMES RENWICK, Emeritus Professor Natural Philosophy and Chemistry, Columbia College.

CARL SCHULTZ, Assayer's Assistant, United States Assay Office, New York City.

Professor JOHN TORREY, United States Assayer, and late Professor of Chemistry in the College of Physicians and Surgeons, New York.

THE ENGINEERS and CHEMISTS of the various Gas-Light and Water Companies, and officers of SANITARY ASSOCIATIONS throughout the United States.

TRANSLATOR.

CAPTAIN THEOPHILUS D'OREMIEULX, late of U. S. Army; late professor of French at U. S. Military Academy, West Point.

DEATH FROM INHALING GAS.—Rev. Robt. Abbott, aged 60, a Baptist clergyman, of Raunds, England, died lately from inhaling gas while asleep. He had retired to rest, leaving the gas-light burning; it had been blown out, and when discovered, the apartment was filled with gas to suffocation.

CORRESPONDENTS' COLUMN.

LONDON, 20th August, 1859.

We duly received your first and second numbers, for which we beg to thank and congratulate you—to congratulate, for your two numbers are very much in advance of what our own *Gas Journal* was when it started; and from the general tone of smartness and activity which pervades both your articles and your management, we think the public of the two countries may look forward to some rivalship between you—as to which will take the lead remains to be seen. Of course, we hope we will beat you. Should this hope not be realized, we will feel but little disappointed. The second paragraph of J. G. H.'s letter, on page 5 of your second number, should be a warning to you that readers may not find *you* devoted "to the squabbles of rival gas companies." There are many people in this country of the same opinion as J. G. H. touching this matter. Another error we have fallen into—that of taking a side, and fighting on it, somewhat regardless of facts. You will, we hope, avoid this. Next to a censor of the press, we detest the mere partisan. The press, so mighty an engine and capable of such holy uses as the circulation and interchange of knowledge, should not be prostituted at the unholy shrine of party purpose. If your word is to be respected and your advice acted on, if you are to guide capitalists in their investments, you must hold the scales evenly. If companies get into war, adopt your national doctrine of non-intervention in other people's affairs. This is not ours, we are sorry to say—in which we are, though, in a national sense, mending; for by intermeddling with everybody, one comes off with loss of purse and character and with merited detestation. Report both sides fairly, but don't bother distant communities with your advice unless you are asked. By this course you may sometimes lose an opportunity of selling five hundred copies of your JOURNAL to the favored company, *but you will ultimately sell thousands of copies in legitimate trade.* You will please continue to send us the AMERICAN GAS-LIGHT JOURNAL, and perhaps you will state in what form or channel foreign subscriptions will reach you. We shall be happy to contribute any information, or answer any queries respecting our *modus operandi* of gas-lighting as they may, from time to time arrive, which many years' extensive practice and varied experience, as we believe you know, may enable us to furnish.

[*From the Germantown (Pa.) Gas Co.*]

Please find enclosed $3 for one year's subscription to the AMERICAN GAS-LIGHT JOURNAL. My absence delayed attention to your favors, for which please accept my thanks. The information which the GAS-LIGHT JOURNAL promises to impart is of great value to every gas company and every individual.

[*From the Portsmouth (Va.) Gas-Light Co.*]

I have filled up your blanks and answered your questions. Allow me to add that your JOURNAL is the best that I ever have seen. I would not be without it for six times the price of it. I look for it every month, and intend to preserve and have them bound.

[*From the Newburyport (Mass.) Gas-Light Company.*]

Enclosed is a statement of the Newburyport Gas-Light Company for publication in the regular tables of the AMERICAN GAS-LIGHT JOURNAL; also nine dollars for subscription for three copies. We hope *and believe* you will be soon compelled to make your valuable JOURNAL a weekly (with monthly price-current). We are surprised and pleased at the rapidity with which it approaches the completeness of character required by the valuable interests it represents.

[*From the Banking-House of* —— ——.]

—— N. Y., Aug. 10, 1859.

We have just finished the third number of the AMERICAN GAS-LIGHT JOURNAL, and are not only pleased with it, but proud of it as coming from "one of us." We hope you will soon compass the round numbers at which you aim—100,000—in which case you will be able to say, what few of us can, *that you make money out of your circulation!*

—— GAS CO., ENGLAND, 26th Sept., 1859.

Gentlemen,—I have this day paid to your credit in London the sum of thirteen shillings, and will thank you to forward me the first two numbers of your JOURNAL. I have received No. 3.

I have forwarded to you our form of account, &c., and shall be glad from time to time to send you any news which I think may interest your readers.

Your JOURNAL will supply the place of the *Gas and Water Times*, and *Joint Stock Ledger*, English journals now defunct. I think there is no doubt of your paper having an immense circulation, if carried on with anything like the spirit with which it is commenced.

From the Kingston (C. W.) Gas-Light Company.

Enclosed please find $3 00 for our subscription for one year for the AMERICAN GAS-LIGHT JOURNAL. We have much pleasure in thus qualifying ourselves to be placed on your list of subscribers; and, as far as we have seen of the numbers already published, a vast amount of good will be done, not only to gas companies, but to consumers and the public in general. We trust that the AMERICAN GAS-LIGHT JOURNAL will have a prosperous and bright career.

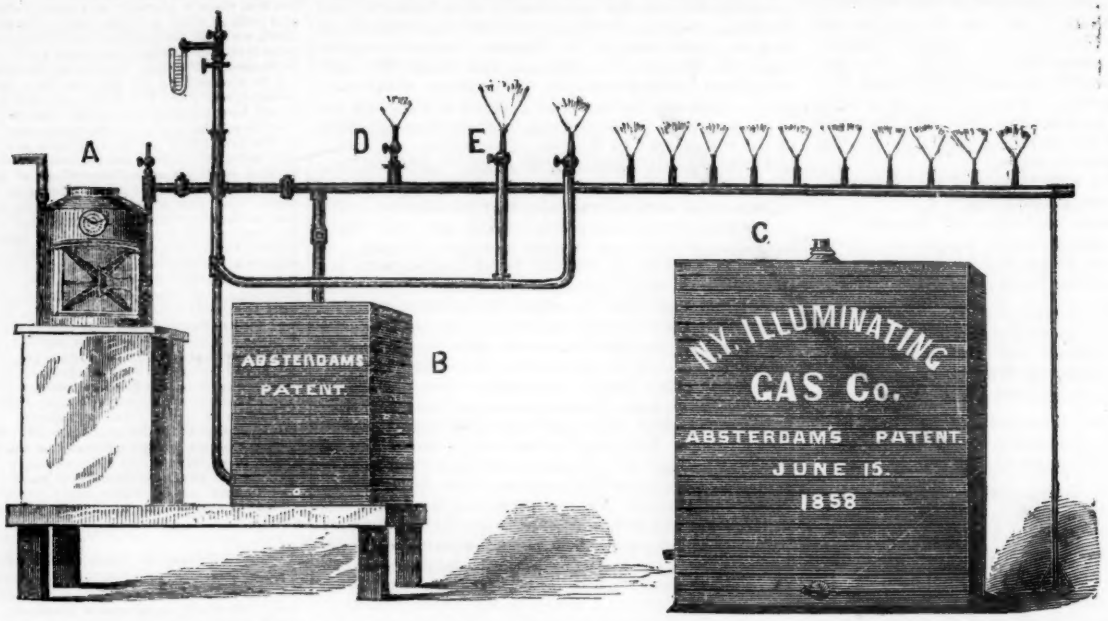
WALTON'S PATENT ANTI-FREEZER.—We have reserved until this number a notice of this admirable and indispensable accompaniment to the service gas-pipes in northern cities. It is the invention of Mr. John Walton, Inspector of the Louisville (Ky.) Gas-Works, whose remote residence from the Atlantic cities, and the absence hitherto of a medium of communication to the gas world, have prevented his invention being known.

The plan is so well illustrated and explained in the advertising columns of the AMERICAN GAS-LIGHT JOURNAL, that we have only to direct public attention to it, as we do now, and to add that evidences of the utility of the instrument, and guaranteed as it is by Mr. Walton to act with entire success, induce us to commend it as the very best remedy for that worst of all winter evils in the gas world—freezing in the pipes. A large consumer of gas can protect his dry meter and pipes from frost by the use of a pint and a half of alcohol per week. Small gas-works delivering 20,000 feet per day, can do the same for fifty cents per day, labor included

LE JOURNAL DE L'ECLAIRAGE AU GAZ.—We are receiving subscriptions for this excellent gas-light journal. It is full of good things. See advertisement.

NEW YORK ILLUMINATING GAS COMPANY,

No. 335 Broadway.—Office No. 4 Moffat's Building.



THIS Company is the proprietor of Absterdam's Patent for Carbonizing Illuminating Gas for the State of New York, and organized for the purpose of its introduction and use throughout this State. This invention secures an increased and superior brilliancy of light, with the economy of from one-third to one-half in the consumption of gas; and, in order to insure this large amount of saving, this company will supply the gas apparatus, materials, and fittings, at their own expense, and take their pay from the savings of gas made by said process. This invention has been thoroughly tested for the last ten months, to the entire satisfaction of their customers, and they are now taking orders from the consumers of gas for its use. In order to understand that we actually save the consumption stated, we present the above plate, which is a prospective elevation of the apparatus now on exhibition at our office.

A represents the gas-meter supplied with a water pressure gauge. *B* represents our smallest sized apparatus, connected with the meter, and supplied with thirteen gas-burners, all lighted. *C* represents our largest sized apparatus that we now have in use. *D* represents a three-foot fish-tail burner consuming gas from the city gas works after being carbonized. *E* represents a six-foot burner consuming same kind of gas without being carbonized.

In this way, we show from a three-foot burner of carbonized gas a more brilliant light than can be produced from a six-foot burner of city gas not carbonized.

The inventor of the above process for carbonizing gas respectfully solicits of merchants and capitalists from the Western, Middle and Southern States, an examination of the same. Having already sold the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and New York, the balance of the States, and the cities and towns in the State of New York, are now for sale, at a reasonable price. A fortune can be made from it in every State in the Union. All negotintions will be attended to, by calling on, or addressing

JOHN ABSTERDAM, Scientific and Mechanical Engineer,
No. 335 BROADWAY, NEW YORK, ROOM No. 6.

THE GREAT UPWARD AND EASTWARD.

Lowe's mammoth aërial ship "City of New York," described in our last number, made its formal entry into this city on 22d October, in one of Adam's Express vans, drawn by we know not how many horses. The Manhattan Gas Company make the gas expressly for its inflation, requiring nearly 1,000,000 of cubic feet, passed through a huge meter erected for the purpose, capable of registering 500,000 cubic feet per diem.

The great air-ship is expected to go upward early this month, and to push eastward at once. If it should perch on St. Paul's the next morning what a pretty "How d'ye do" there'll be in London-town that day!

THE PHILOSOPHY OF ADVERTISING.

Mr. Albert Potts, of Philadelphia, is a philosopher. He understands not only how to invent, but how to profit by his inventions. The first step towards this is judicious advertising. Our last number contained an extended notice of Mr. Potts' Gas-light Mail-Stations. Mr. Potts estimates that notice to have been worth already, twenty thousand dollars to him; he has accordingly engaged an entire page of the American Gas-Light Journal for two years to come, to illustrate his last invention—a gas-meter box to be set in the walls of houses—*and has paid us liberally for the two years' advertisement in advance.* We shall try to make this worth a hundred thousand dollars to him. It is a pleasure to work for those who appreciate our efforts. But our advertising pages are full of philosophers. Pity that Diogenes put his lamp out so soon; there are many wise men left.

The National Coal-Gas Apparatus.—Mr. George Bower's neat engraving and advertisement will attract much notice in this country, from the compactness and mechanical finish his patent gas-works combine. The proof, while lying on our desk, was greatly admired by American gas engineers and officers who called. Mr. Bower sent us quite a parcel of descriptions and illustrations of his various inventions.

REPORTS OF WATER COMPANIES.

We acknowledge with thanks the receipt of full reports and other valuable documents from the Board of the Croton Aqueduct Department, and from the water-works companies of Troy, N. Y., Albany, N. Y., Covington, Ky., and Mobile, Ala. It is our intention to give some account of the supply of water and of the arrangements for sewerage in the principal cities of the United States, and we invite correspondence from all persons in possession of practical information on these subjects.

Cooper's Gas Regulator.—In all large cities, where the pressure of gas is likely to be disturbed, or unequal at remote distances from the works, a really good regulator is indispensable to comfort as well as to economy. It prevents the "blowing," as well as the "waiving" of the flame.

Mr. John H. Cooper, of Philadelphia, has invented a regulator, of which some 700 are in use there, whose advantages consist in—1st. Simplicity of arrangement. 2d. Sensitiveness of the moving parts, secured by the use of the hinged arm which guides, anti-frictionally, the cup and valve. 3d. Freedom from friction and clogging in the moving parts, secured by the disuse of valve stems and guides. 4th. Ease and facility of attachment to meters and pipes. 5th. Security against injury to the meter by the mercury, should it get over the ledge which confines it to the gasometer reservoir. The price of these regulators is low, and its position on the meter is exhibited on page 49 of the American Gas-Light Journal. A sample is at our office.

TO EDITORS EVERYWHERE.

Every editor who will insert editorially a notice of the American Gas-Light Journal, and send us the paper containing it, shall receive in return a copy of the Journal containing a notice of his own paper.

Providence, R. I.—Our agent at this point is D. Kimball.

SILLIMAN'S JOURNAL.

This able scientific periodical, which has ranked for more than forty years at the head of its department of American literature, is advertised prominently on page 77 of this number. It elevates our national character, and is an unfailing source of personal interest and improvement to its readers. We strenuously recommend our friends to subscribe to it at once. The price is but five dollars per annum, and it will repay them tenfold. Its editors are Gray, Agassiz, Dana, Gibbs, and Silliman.

EUROPEAN IMPROVEMENTS IN GAS-LIGHTING.

Mr. Carl Schultz, one of our scientific staff, and to whom we referred in our last, writes that he is examining into the gas-works of Germany, and has secured already some valuable statistics of the Berlin works, which we hope to present in our next number.

TO SANITARY ASSOCIATIONS.

In consequence of the remarks upon public health in our last number, we have been called upon by an intelligent officer of one of the sanitary associations of this State for the purpose of securing in each number of the American Gas-Light Journal an elucidation of our three *specialités* in a sanitary point of view.

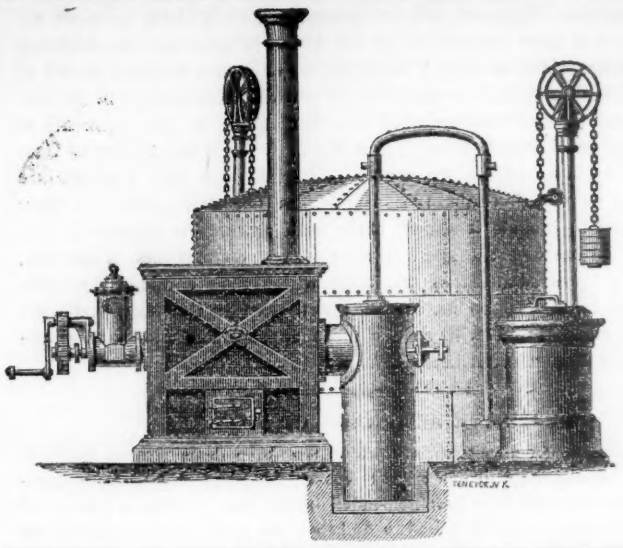
We shall be happy to comply with this suggestion, as it will not abridge our other matter at all, and will secure to us the more extended co-operation of the people of the United States, and promote their happiness, and, we hope, their health.

POSTAGE PREPAID.

The American Gas-Light Journal is never mailed without the postage being prepaid.

OUR SUPPLEMENT.

We are obliged to print two pages of statistics of pipe-setting, for gas companies, in addtion to the twenty-four. They are of no general interest.



NATIONAL GAS APPARATUS,

GEORGE BOWER,

GAS ENGINEER AND CONTRACTOR,

St. Neots, Huntingdonshire, England,

Contractor for the erection of Gas-Works of any magnitude, and Manufacturer of Gas-Fittings, Meters, Regulators, and all apparatus connected with the production and distribution of Gas.

Patentee of the following:

1st. Portable Cannel Coal Gas Apparatus, requiring neither skilled labor nor brickwork to fix, but complete in itself for 10, 20, and 30 lights; specially adapted for cannel coals which do not coke.

2d. Retorts fed and discharged by machinery so that gas-making by this apparatus is conducted without any nuisance whatever; adapted for 40 and 70 lights, and for cannel coal of the Lancashire quality.

3d. Combined apparatus forming in one vessel the hydraulic main. Condenser and Purifier, adapted for all sized works, from 100 up to 500 lights, and any quality of coal may be used with these works.

The advertiser has patterns complete for all sizes up to 2,000 lights, and can forward orders expeditiously. He requires first-class houses to represent him in America, Canada, and the Brazils.

All applications to be prepaid.

CANNEL and COAL

OF THE BEST DESCRIPTIONS

FOR MAKING GAS AND COKE.

ANALYSES OF CANNEL,

Showing, from the most recent tests, the productive power (in volume) of each kind of material.

	GAS. Per ton, 2240 lbs. In Cubic Feet. At 60° temperature.	COKE. Per ton, 2240 lbs. Cwt.	Qrs.	Lbs.	Quality of Coke.	Ammonia Water in Gallons.	Tar in Gallons.	Illuminating power * per burner consuming 5 feet Gas per hour.	Price per ton free on board vessels in Liverpool	Price at $4.80 per £ sterling.
1	11,700	13	2	7	ood.	16	19	32.50	17s.	$4.08
2	11,000	13	1	16	"	18	16¼	21.25	15s. 6d.	3.72
3	10,000	11	2	0	Inferior.	25	15¼	20.00	14s.	3.36

ANALYSES OF COAL.

No.	GAS Per ton, 2240 lbs In Cubic Feet.	COKE. Per ton, 2240 lbs. Cwt.	Qrs.	Lbs.	Quality of Coke.	Ammonia Water in Gallons.	Tar in Gallons.	Illuminating power * per burner consuming 5 feet Gas per hour.	Price per ton free on board vessels in Liverpool.	Price at $4.80 per £ sterling.
1	11,000	13	1	16	Good.	16	11¼	14.00	11s. 6d.	$2.76
2	9,690	13	3	0	"	27	10	10.40	9s. 6d.	2.28
3	9,300	13	2	0	"	24	12	9.80	8s. 6d.	2.04

* Equal to Spermacetti Candles, burning 120 grs. per hour.

The above analyses embrace the best Cannel and Coal raised in the Lancashire, &c., districts, and are tabulated, for safety, rather below the average results. They are large, well screened, and free from dirt when delivered on board vessels, and are used for gas purposes at the chief gas works in England and on the Continent.

Orders for less than 50 tons, (*i. e.*, a boat load,) will be charged the cost of carting, viz., 1s. 6d. per ton.

The prices quoted will in all cases be subject to such alterations, more or less, as the case may be, as may arise in the market between the issue of this offer and the time at which the order may come to hand.

TERMS:—Cash, on presentation of the bills of lading at your bankers or agents in Liverpool, or as may be otherwise arranged, less 2½ per cent. discount

Also, HAND PICKED CANNEL and COAL, for house use.

Concessions in prices made for large quantities.

GAS APPARATUS of all descriptions and on the most approved principles. Also, Purifying and other materials supplied.

ANALYSES, PLANS, and ESTIMATES, and other information required, and the highest references, furnished on application.

Contracts for materials and works entered into. No charge made for superintending shipments, preparing bills of lading, or passing entries.

EMANUEL TURNER & CO.,

Export Offices, 34 Castle street, Liverpool, England.

BY ROYAL LETTERS PATENT.

GEORGE ANDERSON,

GAS ENGINEERING OFFICES,

104 Leadenhall Street, London, E. C.,

PATENTEE OF THE DIRECT ACTING PISTON EXHAUSTER, &c.,

Begs to draw the attention of the Engineers and Managers of American Gas-Works to his Patent Purifying, Changing or By-pass and Shut-off Valve.

Cowen's Patent Fire-Clay Retorts.

JOSEPH COWEN & CO.,

Blayden Burn, near Newcastle-on-Tyne,

ENGLAND,

Were the only parties to whom a Prize Medal was awarded at the Great Exhibition in London in 1851, for "Gas Retorts and other objects in Fire-Clay."

J. C. & Co. have been for many years the most extensive manufacturers of Fire-Clay Retorts in the United Kingdom of Great Britain and Ireland; and orders for Fire-Clay Retorts of all shapes and dimensions, Fire Bricks, and every other article in Fire-Clay, are promptly executed at their works as above.

Cowen's Garesfield Coal and Coke.

Coal and Coke Office, *Quay Side, Newcastle-on-Tyne.*

WILLIAM RYDER,

GENERAL MINERAL and METAL AGENT and Merchant,

4 DEAN ST., NEWCASTLE-ON-TYNE,

ENGLAND,

Is prepared to supply Gas Companies and others with every variety of appliance for the production and supply of Gas, including Gasometers, Retorts (metal and clay), Fire Bricks, Coals, Metal Mains, Tubes, in wrought iron, copper, brass, lead or composition, Meters, Taps, Fittings, &c., &c., and from his extensive experience in this class of work, can guarantee everything of the best description.

GAS-LIGHT SHARES FOR SALE

In several prominent City Companies, paying 8, 10 and 12 per cent. dividends.

JOHN B. MURRAY, BANKER,
No. 40 Wall street, New York City.

D. APPLETON & CO.,

IMPORTERS AND DEALERS IN

AMERICAN AND FOREIGN BOOKS,

Publishers of APPLETON'S RAILWAY GUIDE, and of APPLETON'S DICTIONARY OF MECHANICS.

A work indispensable to all engaged in the manufacture of Gas.

346 BROADWAY, NEW YORK.

HARPER & O'CONNELL,

MANUFACTURERS OF

GAS SHADES AND GLOBES,

OF EVERY DESCRIPTION,

FRENCH COLORED GAS SHADES AND SMOKE BELLS,

Nos. 63 and 65 ELIZABETH STREET, corner HESTER, New York

C. R. WOODWORTH,

MANUFACTURER OF

PORTABLE GAS WORKS,

No. 1 Cedar St., (near Pearl St.) N Y. City.

BENJAMIN PIKE & SONS,

OPTICIANS,

IMPORTERS AND MANUFACTURERS OF

Mathematical and Philosophical Instruments,

No. 518 BROADWAY,

OPPOSITE ST. NICHOLAS HOTEL,

DANIEL PIKE, GARDINER PIKE. } *NEW YORK.*

Gold, Silver and Steel Spectacles; Barometers, Thermometers, Surveying Compasses, Theodolites, Levelling Instruments, Opera Glasses, Telescopes and Microscopes; Air Pumps and Electrical Machines. Instruments and Spectacles repaired. Periscopic Glasses and Pebbles.

BRADBURY M. JOHNSON,

GAS FITTER AND PLUMBER,

No. 111 EAST EIGHTEENTH ST., NEW YORK.

A large and elegant assortment of Chandeliers, Brackets, &c. Gas Pipe and Posts made for Gas Companies on favorable terms.

E. A. COEN,

Engineer and Contractor for Coal Gas Works.

Plans and specifications furnished and Works erected for cities, towns, and villages. Rosin Works altered and repaired. Pipe, &c., furnished and laid for Water and Gas,

E. A. COEN, Rondout, Ulster Co., N Y.

WM. L. SCHOENER & CO.,

ENGINEERS AND CONTRACTORS,

For the erection of COAL GAS WORKS.

GEORGE DWIGHT, H. A. CHAPIN, WM. L. SCHOENER.

REFERENCES:

Springfield Gas-Works,	Mass.		Thompsonville Gas-Works,		Ct.
Milford	"	"	New Britain	"	"
Clinton	"	"	Norwalk	"	"
Beverly	"	"	Norwich	"	"
Ware	"	"	Tarrytown	"	N. Y.
Glasgow Mills,		"	Clyde	"	"

Wheeler & Wilson Works, Bridgeport, Ct.

ERICSSON'S CALORIC ENGINE,

For driving all light Machinery, Printing Presses, Domestic Mills, Hoisting Machines, and for all Pumping purposes, may be had at the Agency. The smaller sizes can be driven by a Gas-light.

No. 164 Duane Street, cor. of Hudson.

JNO. B. KITCHING.

MARSHALL LEFFERTS & BRO.,

90 and 92 Beekman Street, New York,

IMPORTERS AND DEALERS IN

METALS, TIN PLATES, SHEET IRON,

Copper, Block Tin, &c., for Gas Meter Makers.

ALSO MANUFACTURERS OF

GALVANIZED SHEET IRON, GALVANIZED WIRE, NAILS, SPIKES, &c.

Sheets Corrugated and Fitted for Roofing.

PIG IRON, LEAD PIPE, SHEET LEAD, SHOT AND BAR LEAD.

The American Gas-Light Journal,

ISSUED MONTHLY.

TUESDAY, NOVEMBER 1, 1859.

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A RETROSPECT of the month just passed presents a few incidents worthy of serious discussion or elaborated argument, and yet even this remark needs qualification. A scheme, magnificent in its avowed aim, and whose successful accomplishment would inure to the vast advantage, as well of the producers as of the consumers of gas, has been initiated. The success of water-gas is, if not an accomplished, an alleged fact, and to judge from the terms in which certain sanguine ones characterize it, the systematic inception of this project argues for it no mere ephemeral existence. It is very true that White, Lowe, and Val Marino, have experienced nothing but disappointed hopes, and the consciousness of misplaced talent and labor, in a field where they looked for professional distinction and practical success: it is equally true that the best talent of both hemispheres has failed to solve the problem of the economical decomposition of water, but we have had a reduplication of the sanguine visions of the projectors of water-gas brought so vividly before us that we can scarcely wonder at the causeless anxiety of the smaller coal-gas companies as to the stability of their present process. Time is very prudently demanded by the parties whose experiment in Wilmington, Del., is before us, in order to perfect their process, and with no less caution they ask a present suspension of opinion as to their scheme: we do not seek to invade their *penetralia*, and in alluding even thus far to the topic of the day, we only wish to assure our numerous interrogators that the doom of coal-gas is not yet knelled.

We are surprised that the patentees of the application of the Hydrocarbon process to the manufacture of Wood Gas have not sent us the results which the adoption of their process has secured to the shareholders of the Augusta Ga., Gas Works. The topic is one of the most immediate importance to the Companies in or near the great Pine belt of our Southern Atlantic seaboard, and we hope that this "mere mention" will elicit reliable information as to results already obtained. While Wood-Gas is not far from equal to Coal-Gas as to illuminating power, its manufacture is in many parts of our country far more economical than the alternative of Coal, and far less objectionable than that of Rosin. We shall, therefore, be glad to publish any authentic reports of a branch of Gas-Lighting which is viewed with such favor, and so extensively adopted in the interior of the European Continent.

It will be observed that Professor Aikin's analyses have elicited a severe stricture from Mr. Courtenay, yet the remarks of the latter are stripped of half their force by the explanation from Dr. Aikin, which appears in our present issue. We have no desire to become partizans, nor to involve ourself in a controversial discussion, and yet we cannot but view Dr. Aikin's letter as embodying a virtual surrender of his position. It is true that he reconciles many of the discrepancies between his results and those of Dr. Torrey, but does so only by conceding that (however logical his deductions) his premises have been, in at least one essential point, open to objection.

We have published correspondence regarding the graduation of the Photometer staff, and the manipulation incident to photometric analyses, but regret that more stress is not laid upon the general adoption of a standard of measurement of illuminating values. With apparatus of uniform and approved construction, properly set and carefully manipulated, the determination of the illuminating powers of gas sent out would become a daily and valuable integral of gas management. In reply to numerous interrogatories on the subject, we would say that the apparatus approved by that first of gas-engineers, ALFRED KING, Esq., of the Liverpool United Gas-Light Company, may be procured through Mr. Theodore W. Parmele, of this city. Mr. Parmele's connection with Charles Roome, Esq., and his conversance with the most approved scientific processes of the English practice, enable him to supply at very economical rates the best photometric apparatus, and the standard English photometric candles. He furnishes with these, full and specific details of the modes of erection and manipulation, thus enabling our Gas Companies to obtain at a price far below its intrinsic worth a photometer room such as will soon be an indispensable adjunct to every well ordered Gas system.

We are gratified by the daily receipt of letters bearing evidence to the steady and increasing confidence which the AMERICAN GAS-LIGHT JOURNAL enjoys among Gas Engineers and Gas consumers. We claim no merit for this, since it is a mere recognition of the *hiatus* in American Gas-Lighting which our enterprize has served to fill in, yet it cannot but be a matter of personal satisfaction to find our impartiality and disinterestedness to be conceded as equal to the responsibility attaching to us as the exponents of public and universal illumination. From Maine to Texas the AMERICAN GAS-LIGHT JOURNAL is extending the sphere of its influence. and Transatlantic experts deem its vocation not too insignificant nor unimportant in their own operations to include it among their authorities. To deserve to perpetuate, and to increase the good opinion of our constituents, is our aim, and in this acknowledgment of the trust which their confidence renders but the more binding upon us, we venture to express the hope that their support and co-operation will render most appropriate and fitting the cherished aspiration "EXCELSIOR!"

DEFECTIVE SEWERAGE OF TOWNS.

CONSIDERING the frequency with which it has been demonstrated that the arrangements for sewerage in our large towns are inefficient, and the earnestness with which improvements have been demanded by the more intelligent portion of the public press, we are not surprised to find that the apathy so long existing on this subject is diminishing, and that public opinion is becoming more enlightened. The tendencies of the present age, and the exigencies of our rapidly developing commercial and manufacturing interests, are congregating large masses of persons in the great centres of industry and trade. Hence the necessity for more adequate sewerage becomes every year more pressing. And it is a most gratifying and significant fact that this branch of sanitary improvement, both in Europe and in this country, is assuming a position of commanding eminence and imperative urgency among the recognized social wants of the age. Indeed, so much attention has it attracted in the public thought that at present few persons of intelligence can be found who doubt, and fewer still who would venture to deny, its vital and momentous relations to the health, life, and morality of the industrious classes of society. The need for a scientific and complete reform in the sub-structures of our dwellings, avenues, and streets, having been long acknowledged, and the duty of every civilized legislature to protect the health of the people by sanitary improvements being fully established, it is not a little remarkable that so much yet remains to be done ere the simplest and most elementary principles of this science are brought into practical operation, so as to secure efficient drainage even for the more commodious dwellings and less crowded districts, inhabited by the opulent classes of society. A person not practically acquainted with such matters would be surprised at the frequency with which the purchaser of an elegant, well-built, and conveniently located house, finds himself compelled, after a short term of residence, either to expose his family to the noxious effluvia of the drains which convey underneath his habitation the filth from those of his neighbors, or to go to the heavy expense of constructing a private sewer under a portion of the street, that he may divert the course and escape the power, of the noisome stream, from which emanate mephitic gases, filling the air with the seeds and active germs of disease and death. The time we believe will soon arrive when, under the beneficent influence of science, our city drains and common sewers will be so constructed, as to give to the poorest citizens, and to the more crowded dwellings, without cost or trouble, a greater security against the pernicious vapors of bad drainage, than is now purchased by the expensive private sewers of more wealthy proprietors. Undoubted evidence seems to prove that the excretory matter which is continually poured into our public sewers cannot, except to a limited extent, be washed away. Experience shows that under ordinary circumstances, wherever such filth is deposited, there it remains; and it cannot be doubted that the physical impurities of the atmosphere hanging over our large cities, are to no small extent owing to this cause. The long retention of the excrementitious substances which lie putrefying under the houses and in the sewers, cause, it is probable, much suffering, abridge human life, and induce or predispose to many forms of disease; for under present arrangements, as we have stated, our drains and sewers do not carry away what passes into them. The more poisonous solid portion they retain as reservoirs; and as putrefaction and decay go on, these subterraneous conduits become charged with gas, and distribute, imperceptibly and silently, a deadly virus, spreading distemper, predisposing to infection, and sowing everywhere the seeds of death.

The general adoption of the ordinary water-closet was in some respects an improvement upon the old cess-pool, for the latter was frequently and purposely constructed so as to allow the moisture to be absorbed by the sub-soil, so that by the saturation whole localities became affected, pernicious gases of the most active and subtle nature were generated, the air was polluted, and probably the water of the neighboring springs was tainted and more or less corrupted by the impurities permeating the strata of the soil through which the water rose. At Paris these facts were first brought to public notice a few years ago, when a government commission was appointed, whose investigations clearly showed that almost the whole sub-soil of the city was saturated in the way we have described. To prevent further mischief from this cause, arrangements were adopted for daily conveying the contents of the cess-pools from the city in air-tight carts, and carrying them to Montfaucon in the suburbs, where they were manufactured into *poudrette*—a dried manure used by agriculturists, not only in France, but in other countries.

From what has been said, the operation of existing methods of drainage is clearly seen to result in the deposit underneath our houses and streets of a mass of putrefying substances, which competent authorities pronounce to be the most pestilential matter known. Nor is this all. Ducts and drains lead from various apartments of every house into the drains containing these fœtid deposits, and the gases generated easily force their way into the houses. The consequence is easily seen.

The less robust members of the family suffer the most—for by constitution they are less able to resist the virus, and their habits lead them to pass more of their time within doors. Here is a fruitful source of many of the most distressing diseases prevailing among women and children; here, too, is an explanation of the lassitude often felt on rising in the morning. The doors and windows having been closed there is little ventilation; and the temperature of the house being greater than that of the sewer, the gases naturally ascend. Thus, while we sleep we breathe a poisoned atmosphere, and the only wonder is that the *vis medicatrix naturae* so quickens our vital powers, as to enable us, amid such adverse influences, to live so long. For if, in the words of an eminent physician, "well attested cases are recorded of fever following as directly from a blast of putrid air from a church, vault, a street-sewer, or a house-drain, as death follows from the passage of a bullet through the brain," the wonder is not that the health of towns is so bad, or life there so short, but that epidemics, fevers, and infectious distempers are not more frequent and more extensively fatal.

In a future paper we intend to describe some of the remedies for this state of things; and, collecting carefully the records of past experience, we shall indicate such practical rules as will enable our plumbers, architects, engineers, and builders, *but particularly our plumbers*, to avoid some of those prevalent errors which have produced so much of mischief and loss to the community.

SYMMES' EXTINGUISHER FOR STREET LAMPS.

The rapidity with which gas is taking the place of all other artificial lights makes every improvement in the apparatus connected with it, designed to economize labor or material, of interest to shareholders, gas companies, and the public generally.

The subject of this illustration is a new mode of extinguishing street lamps, or other public lights, where a large number are superintended by a single corporation, and all to be extinguished at the same time, or as nearly so as possible. Those acquainted with the ordinary method of extinguishing public gas lamps are aware that a vast amount of labor and expense is involved, and what renders it more difficult is the fact that this labor is required generally in the night, thereby exposing those engaged in it to severe storms and cold. By the use of the apparatus herein described all this labor, expense, and exposure may be avoided, and the work done better at the same time.

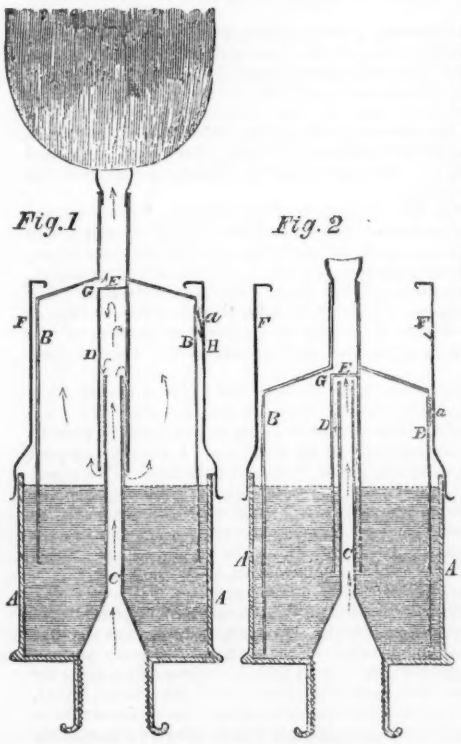


Fig. 1 represents the extinguisher with the gas passing on to the tip, or burner, and there meeting the flame. *A* is a cylinder or tank of mercury, over which a chamber, or cup *B*, is inverted, with its lower edge, or open end, dipping into the mercury. The cup *B* is held in the elevated position shown in Fig. 1 by means of the pawl *a* resting in the notch *H*. When in this position the gas comes from the main through the inlet *C*, and flows in the direction of the arrows to the flame. The inverted cup or chamber *B* is of such weight that it may barely overcome the ordinary pressure of the gas; and in order to extinguish the lights the pressure in the mains is momentarily increased by means of a forcing apparatus in the pipe at the gas-works or junction of the section to be extinguished. This increase of pressure overcomes the weight of the chamber or cup *B*, raising it to the hooks *F F*. The pawl *a* is drawn out of the notch *H* and falls to a perpendicular, when the pressure is reduced to the ordinary height, letting the cup *B* descend to the bottom of the tank *A*, thus submerging the open end of the valve *D* in the mercury, and extinguishing the light. The cup and valve then occupy the position shown in Fig. 2.

When the apparatus is to be operated by a momentary reduction of the pressure, the cup *B* must be made of such weight as to be supported in the elevated position shown in Fig. 1 by the pressure of the gas within it; then, when the time arrives to extinguish the lights, the pressure in the mains is reduced by means of a valve or governor at the works sufficiently to allow the weight of the cup to overcome it and descend to the bottom of the tank as before.

When the pressure is restored to its original height the valve will not be opened, as the gas now acts only on the small area at *E*, instead of on both *B* and *E* as before. The same apparatus may be used for both modes of extinguishing by adding a small ring-shaped weight to the top of the chamber or cup, and placing the pawl in the notch when to be operated by a temporary increase of pressure.

When to be operated by a temporary reduction, it is obvious that neither weight nor pawl will be necessary. One of these valves will have to be applied to each lamp, except where two or more lights are supplied from the same pipe. In this case the cup *B* will have no outlet on the top, having instead a pipe leading down through the mercury, thence to the burners. The lighting will be performed by raising the cup by hand and applying the light to the tip, as with the ordinary burner. No stop-cocks will be required when this valve is used, and if the mechanism is perfect there can be no doubt of its accomplishing the object for which it is made better, than any means heretofore known. The only difficulties (and they are only apparent difficulties) to be overcome are the different degrees of pressure at various intervals in the evening, caused by the more rapid consumption of gas at one time than another, and the liability of the lamp pipes to be affected by the frost in severe weather.

If the burners are to be extinguished by a temporarily reduced pressure, those used in localities where the ordinary consumption produces this effect must have the inverted cup sufficiently light to maintain its elevated position until the pressure is reduced *still lower* by a cock or valve in the main, or the lamps will be extinguished before the desired time.

The mode of extinguishing by an increase of pressure is best adapted to such localities, as this may be applied at any time without the slightest inconvenience to any one. If all the lamps could not be reached by a single trial when all the stores and dwellings were illuminated, the force could be applied afterwards when most of the private lights were extinguished, and its operation would be certain. It seldom happens that the public lights are to be extinguished during the most rapid consumption of the gas, so that no difficulty need be apprehended from variation of pressure. Should the pipe of a street lamp become coated with frost so as to reduce the pressure below the extinguisher, or between it and the main, if operated by a temporary reduction of pressure, it would be closed, and if by a temporary increase, it would remain burning until closed by hand; but the amount of gas consumed would be very trifling in the few cases of this kind that might occur, owing to the small passage for the gas through the coated pipe. The amount daily wasted by all large companies through imperfect stop-cocks, added to the amount consumed after the time of extinguishing has arrived, owing to the neglect and carelessness of employees, and often from unavoidable detention, would more than offset all the contingencies of using the extinguisher.

By the use of such an apparatus a great expenditure for labor might be avoided, and the public lamps be more completely under the control of the superintendent. One man at the gas-works, or at the outlet of each gas-holder, could in one minute of time extinguish all the lamps in the section supplied from the holder, thus saving several hours' labor of many men.

Gas companies or others wishing information concerning this invention can address H. K. Symmes, Newton, Mass., the inventor and patentee.

GAS-LIGHT LAW.

Reported for The American Gas-Light Journal.

N. Y. Supreme Court.—Andres Cassard *against* The Manhattan Gas-Light Company. Before Hon. Judge Sutherland.

The plaintiff purchased and occupied a segar store on Broadway, which, before his purchase, was lighted with gas from defendants' mains. After plaintiff took possession of the store defendants notified him to make the usual application for gas, if he desired to be supplied by them, and to make a deposit, according to the rules of the company, to secure payment for gas consumed; and, on his refusal to make such deposit, threatened to cut off the supply. Thereupon, plaintiff brought this action *for an injunction*, alleging, in addition to the facts above stated, that he had been a customer of the defendants, at other places, for several years, and had always punctually paid his bills; that he was abundantly responsible and ready to pay the bills for gas at this store, when presented according to the usual course of business of the company; and that to cut off the supply would subject him to great and irreparable damage; *and he claimed that the company were bound to supply him with gas without any deposit.*

Sutherland, J.—The complaint in this case must be dismissed, for the reasons stated at Special Term on the argument. To hold that the plaintiff could maintain this action on the pleadings and proof therein, would be, in effect, to hold *that the defendants were obliged to part with their property without pay.*

N. Y. Superior Court.—The Manhattan Gas-Light Company *against* Frederick A. Smith.

The defendant in this action applied to plaintiffs to light with gas his drug-store on First avenue, New York, promising to make a deposit, as required by the rules of the company. Plaintiffs accordingly furnished and placed in the store a gas-meter, and connected the same with their mains, through which the store was lighted After this was done, defendant refused to make the required deposit, and also refused to permit plaintiffs to take away their meter, or to disconnect it from the mains. After several efforts to obtain the meter, which were resisted, and rendered ineffectual by defendant, who continued to burn the gas, plaintiffs commenced this action, under the Code, for the possession of their meter. The sheriff broke open the closet in the store, in which the meter was nailed up and attempted to be kept by defendant, carried away the meter, and delivered it to the plaintiffs. The case came on for trial before the sheriff's jury, who, after hearing evidence of all the facts, found a *verdict for plaintiff for $50 damages for the detention of the meter*, and for this amount, with costs of suit, judgment was entered against defendant.

CIRCULATION
OF THE
AMERICAN GAS-LIGHT JOURNAL
TO BE 100,000.

There are indications entirely satisfactory to us that the figures stated in our third number as to the future circulation of this Journal, are not extravagant. During the past month, a stream of subscriptions has been pouring in from companies and individuals in the United States (including California and the distant Territories), the Sandwich Islands, Canada, Great Britain (extensively), South America, Central America, and Cuba. Our postage for the four numbers already issued, exceeds $500 (over £100), at one cent for United States and two cents for foreign subscribers. We look for a larger ratio of increase of subscribers in future.

THE CROTON WATER ANALYSIS.

We publish below the official reports of Professors Torrey and Chilton, appointed by the Croton Aqueduct Board to make a chemical examination of the water of the Croton lake. These documents are extremely satisfactory, and at once dispelled all the doubts and misgivings by which the minds of our more nervous citizens had been for some time agitated.

Of the important questions settled by these reports, two or three deserve special notice. *First*—The cause of the musty odor and unpleasant taste, so universally complained of, has been discovered. The foreign substances are proved to be easily separable from the limpid fluid, leaving it clear, sweet, and wholesome. It has been placed beyond doubt that the unpleasant smell and taste, together with the suspended matter producing them, could be easily removed by the simple process of filtration, and by immersing in a gauze bag a small quantity of animal carbon, or fresh-burned vegetable charcoal. *Secondly*—The temporary nature of these minute floating particles is also fully established, both by the evidence of the scientific gentlemen already named, and by the fact that for several weeks past the Croton water has been entirely free from all offensive qualities. The diminutive microscopic plants whose volatile odorous juices caused so much alarm, have probably, in small quantities, vegetated for years with the other aquatic plants of the Croton lake, without being noticed, or communicating any appreciable flavor of an offensive nature. But the past summer appears to have been unusually favorable to the growth and multiplication of this little alga. For several years, perhaps, this aquatic vegetable may not be again noticed; should it however appear, and cause a repetition of the annoyances of the past summer, the plant is so short-lived that a few weeks at most will terminate the trouble. *Finally*—The harmless character of the water, when in its worst condition, has been clearly proved. Dr. Chilton states, that he not only drank freely of it, when its odor and taste were most offensive, but that he separated the suspended matters, and partook of them in a highly concentrated form without receiving harm.

Among the numerous other subjects for congratulation in connection with this report is the fact that the present analysis, when compared with those of 1836, of 1842, and of 1845, proves that at present the Croton water is not only more free from organic and inorganic substances than most of the water supplied to other cities of the old and new world, but that it is purer than ever before.

The following engraving represents a portion of the microscopic plant, by whose unusual multiplication the offensive qualities referred to were communicated to the Croton water.

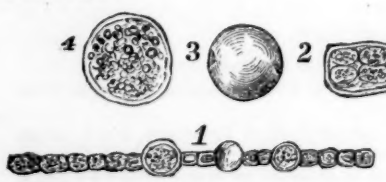


Fig. 1. A portion of the plant 800 times magnified.

Fig. 2. One of cells more highly magnified.

Fig. 3. A larger yellow cell, destitute of granules.

Fig. 4. A spore bearing cell.

Figure 1 represents the thread-like stem of the plant, which is continuous, and never branches off into smaller stems, as is usual with other forms of vegetable life. It is highly magnified, and is easily seen to be composed of a row of contiguous cells, which, on close examination, prove to be of three distinct kinds. Figure 2 represents one of the smallest and most numerous of these three classes of cells, as it appears when subjected to a superior magnifying power. Figure 3 represents a larger and more spherical cell, produced probably by the expansion and development of the former class of cells, and assuming as it ripens to maturity a yellowish hue. It contains no granules, and is filled with a fluid of a peculiar nature, whose functions are not at present ascertained. Figure 4 represents a larger spherical cell, which is usually three times the size of the undeveloped ones marked No. 2 It is filled with minute green germs, or seeds, and probably future investigations may prove that both these classes of spherical cells are connected with the functions of propagation, and are related to each other in a manner somewhat analogous to that of the two classes of flowers appearing in the blossoms of fruit-bearing trees, and so familiar to us in other sections of the vegetable creation.

OFFICIAL.

CROTON AQUEDUCT DEPARTMENT,
New York, August 27, 1859.

The unpleasant taste of the Croton water in the early part of the month, induced the Croton Aqueduct Board to call upon Messrs. Torrey and Chilton, to make a thorough chemical examination.

The reports of those gentlemen are herewith submitted to the public, and it is confidently believed will prove as satisfactory to the community as they have been to this Board. The Board would take this opportunity of saying, that from the first appearance of the objectionable taste in the water, every available means has been employed to discover the cause and counteract its effect; and are happy to add that, in a few days, the entire renewal of the water in the pipes and in the Reservoirs, will do away with the last trace of anything objectionable in its taste.

MYNDERT VAN SCHAICK,
THOMAS B. TAPPEN,
A. W. CRAVEN,
} Croton Aqueduct Board.

NEW YORK, August 25, 1859.

To Myndert Van Schaick, Thomas B Tappen, and A. W. Craven, Esqs., Croton Aqueduct Board:

GENTLEMEN,—At your request, and in company with Dr. Chilton, I visited Croton Lake on the 18th instant for the purpose of ascertaining, if possible, the cause of the disagreeable quality observed in the water distributed through the city, and which had been the subject of serious and general complaint for a week or two previous. On driving down the hill that leads to the dam, and before reaching the lake, we noticed the same musty order that characterized the water of the hydrants in the city. Mr. Adamson, the gatekeeper, afforded us every facility in prosecuting our researches, and piloted us to various places on the lake. He brought to our notice a bright green substance that had appeared within the last twenty-four hours in the water near the dam. This material had been driven, by a favorable wind, to the outlet of the lake, where it accumulated so as to form a considerable stratum in quiet recesses near the shore. The water at the time was very low, only a small portion flowing over the dam. A quantity of the water, quite thick with the green material, had been reserved for our examination, and we collected some of it ourselves from the surface of the lake. We soon became convinced that this unusual ingredient was the cause of the peculiar taste and odor of the water. After examining the character of the larger aquatic plants that grew abundantly in the western portion of the lake, and taking new samples of the water from various places, we returned to the city, and I commenced my examination immediately, before any obvious change had taken place in the properties of the water. On placing a portion of it under a microscope, it was found to be loaded with little straight filaments (see fig. 1) which were composed of oblong roundish cells, in a single row like a string of beads (see fig. 2); and in no case did I find the threads to be branching. Most of the cells were about one-third longer than broad, and were filled with a bright green substance, composed of irregular grains. This matter was proved to be chlorophyll, or the green coloring substance of leaves. Interposed, here and there, in the bead-like filaments were two other kinds of cells; the one perfectly spherical, three times the size of the oblong ones, and filled with green spores or seeds, by which the plant is reproduced (see fig. 4); the other also spherical, but much smaller, and containing a yellowish fluid, but no green grains (see fig. 3). The function of the latter is unknown to me.

There were only a few other kinds of microscopic plants in the water, nearly all of which belong to a particular tribe, called by botanists *Desmideae.* In ordinary seasons these constitute the chief vegetable forms existing in the Croton. The number of living animalculæ was also unusually small. In repeated instances on concentrating the water of the city hydrants, at the time that it exhibited the offensive properties complained of, I found its characters precisely those of the water taken at the dam. The day after collecting the sample of bright green water at the lake, I submitted it again to the microscope, and was surprised to find that all the beaded filaments had disappeared; but there were floating in the liquid, in a separate state, the large spherical green cells, and the smaller yellowish ones. I had noticed, in my first examination, several of the filaments break up by the successive bursting of the little cells. Without doubt, the myriads of little plants contained in my sample had disappeared in the same way. I have since repeatedly seen the filaments break up in water taken from the hydrants. They undergo dissolution much more quickly when they are accumulated by the filter, or when they are confined in a bottle. After the rupture of the cells the water retains its green color for some time, but it finally becomes bleached from the decomposition of the chlorophyll. The bright green water from the Croton Dam became quite viscid in less than twenty-four hours, and the following day it was somewhat putrid and emitted a little ammonia, but not the least trace of sulphuretted hydrogen. Most of the spherical cells just noticed remained entire, but the green ones had evidently matured their spores or seeds.

Before the green water had decomposed, I evaporated a portion to dryness, with great care, so as to avoid scorching it. Sulphuric ether agitated with the residue became of a lively grass-green tint, but without materially diminishing the color of the mass. The solution, after spontaneous evaporation of the ether, left a thick brownish-green matter, which was resoluble in ether and in alcohol, but not in water. It was doubtless one of the coloring bodies of the chlorophyll. A portion of the green water was then boiled for sometime. It lost its color and odor, and deposited brownish flakes on cooling. The water that distilled over contained the odorous principle in a concentrated form.

From this examination, and from the researches of Dr. Chilton, I think we are warranted in concluding, that the recent offensive condition of the Croton water was owing to a rapid and abundant growth of a microscopic conferva-like plant, which abounds in a volatile, odorous principle, soluble to some extent in water. We were extremely fortunate in making our visit to the Lake at just the time when a favorable wind drove the little plant (floating by adhering bubbles of oxygen gas) to the outlet; thus bringing within the space of a cubic inch as many of the filaments as could be separated by filtration from a hogshead of the water a short distance above the dam.

I have not yet satisfied myself as to the origin of those little filaments; whether they are the entire plant, or once constituted part of a more complex alga. They are more minute than in any true conferva known to me, being only 2,500th to 2,000th of an inch in diameter, and from 50th to 20th of an inch long. I strongly suspect that they are derived from a species of the genus *Nostoc* of botanists. This genus usually consists of a globular or oblong vesicle, from the size of a duck shot to the bigness of a plum, and filled with mucus which is loaded with minute bead-like filaments. When the little bladders burst, the contents escape, the mucus dissolves in the water, and the filaments are set free. Sometimes the waters of small lakes are filled with these small bladders of *Norsoc.* Since examining the water I have had no opportunity of revisiting the lake to verify my conjecture.

The question naturally arises why this plant should have made its appearance in such quantities, and not have been noticed before. We can only reply that the case is not a singular one. Even in the higher order of plants it is a common circumstance for a particular species to abound at one time and then almost disappear for years; and in the lower vegetable tribes, especially those which inhabit the water, is this strikingly the case. The present summer has been unusually favorable to vegetation of all kinds, but what are the circumstances which have so remarkably multiplied this little alga I have not yet determined. It is a plant of short duration, and should it reappear another season, the probability is that it will not annoy us long. Very likely more or less of it occurs every summer, but this is the first time that it has been offensively brought to our notice. Even when it was most abundant in the Croton, I do not believe that it communicated any unwholesome quality to the water. Its odor and taste were certainly unpleasant. While the unpleasant quality of the water continues, the ordinary filter will remove all the suspended matter, and a little fresh-burned vegetable charcoal, or animal carbon, will take away the disagreeable smell and taste. A good method of using the charcoal is to heat some small pieces red-hot, and, after quenching, inclose them in a little bag of gauze, and suspend them in the water. The charcoal should be removed or reburned every day or two.

I am, gentlemen, very respectfully your obedient servant,

JOHN TORREY.

NEW YORK, August 25, 1859.

To Myndert Van Schaick, Thomas B. Tappen, and A. W. Craven, Esqs., Croton Aqueduct Board:

GENTLEMEN,—In compliance with the request received from your Honorable Board, that I would make a chemical investigation and analysis of the Croton water, for the special purpose of ascertaining the cause of its peculiar unpleasant condition, I beg leave to offer the following report as the result of my investigation:

On the 12th of August instant, I received from Mr. A. W. Craven, Chief Engineer of the Works, three demi-johns of the water, numbered and labeled as follows:

No. 1. Water from the mouth of the Aqueduct, at the Receiving Reservoir.

No. 2. From the east side of the gate-house, southeast corner of Receiving Reservoir, South Basin.

No. 3. Water from Forty-second street Reservoir.

On emptying the water from each of the demi-johns into separate large glass jars, it presented the same general appearance in all. The color, when viewed thus in bulk, by reflected light, was of a faint brownish hue, but by transmitted light it had a shade of green. It was nearly transparent, but upon close inspection, some minute particles were observed suspended throughout the mass. The taste and odor of each was the same as that of the water drawn from the hydrants in the city, and in these particulars closely resembled the water of ponds and marshes abounding in vegetable matter. After remaining at rest for a few hours, a deposit of light flocculent matter was observed at the bottom of each of the jars containing the water. Portions of this matter were removed and examined with a microscope, and in each case numerous minute aquatic plants and siliceous remains of Brittle-worts (*Desmideae*), with a few living animalculæ, were easily detected. A similar sediment was obtained from a new filter attached to the hydrant in my laboratory, by allowing the water to pass through it for a short time. In this concentrated form it was of a decidedly green color. By the application of nitrate of silver to each of the samples of water, they were found to change color quickly, under the influence of solar light, to a deep claret color. The change of color being greater than I had observed by similar treatment of Croton water on former occasions, indicated that it contained an unusual amount of vegetable matter. One gallon (231 cubic inches, 58,327 grains) of the water No. 1, was carefully evaporated in a porcelain dish to dryness; and the dry residuum, which was of a brown color, was found to weigh 3.68 grains. This was heated in a platinum capsule until the organic matter was burnt off. During the combustion it emitted the odor of burning vegetable matter, mixed with a small quantity of animal substance. It was again weighed, and found to have lost 0.92 of a grain. The solid contents, therefore, of one gallon of water No. 1 consisted of

	Grains.
Inorganic (mineral) matters	2.76
Organic (chiefly vegetable) matters	0.92
Total	3.68

One gallon of water No. 2, similarly treated, gave

	Grains.
Inorganic matters	2.769
Organic matters	0.930
Total	3.699

One gallon of water No. 3, treated in the same way, gave

	Grains.
Inorganic matters	2.765
Organic matters	0.940
Total	3.705

A qualitative analysis of the inorganic matters showed the presence of lime, magnesia, sulphuric acid, chlorine, soda and a trace of potatssa. The organic matter was mainly composed of extremely minute aquatic plants, of which an account will be given by Dr. Torrey in his report; but I detected in it also crenic acid, in combination with alkaline bases.

To determine the relative proportions of the several constituents of the water, I made a quantitative analysis of three gallons of the water No. 3. The results thus obtained, when reduced by calculation, gave the following as contained in one gallon:

	Grains.
Chloride of sodium	0.4040
Chloride of calcium	0.1036
Chloride of magnesium	0.1466
Sulphate of lime	0.3536
Carbonate of l me	0.8366
Carbonate of magnesia	0.3900
Carbonate of soda, and a trace of carbonate of potassa	0.2700
Silica, alumina, and a trace of iron	0.1698
Total	2.6742
Organic matters	0.9158
Total grains	3 5900

While the preceding investigation was in progress, I was requested, on the 16th instant, to visit the Croton Lake, in company with the President and Mr. J. C. Winder, Assistant Engineer. We traversed the entire length of the lake, a distance of five miles, taking samples of water from different parts of it. The first sample was procured from that part of the dam where the water first enters the aqueduct. The next about one-fourth of a mile distant. The next sample about a mile further on. The fourth from the vicinity of Pine's Bridge. The fifth from Kisco Creek, where it mingles with the water of the lake. The last sample was taken from the head of the lake.

A physical examination, made at the time of taking the samples, revealed nothing unusual or different from what I had observed in the water obtained from the reservoirs in the city. The odor and taste were similar, and the same kind of minute floating particles were observed in each, when examined with the aid of a magnifier. The extraneous particles were most abundant in the water from the dam. They were found to be less apparent as we approached the head of the lake, where the water was clear and transparent.

On the following day I again visited the lake, in company with Prof. Torrey, who, through some misunderstanding, did not accompany us on the first excursion. Upon arriving at the lake, we learned that Mr. Adamson, the keeper of the dam and gate, had observed since the preceding day, an unusual quantity of a light green matter floating on the water near the dam. Upon the slightest agitation of the water this green substance was diffused so as to appear lost, but with care he had procured a pailful of it, which he had preserved for our inspection. Some of the same materials we procured ourselves from the surface of the lake, and we took home with us samples for chemical and microscopic examination. Before leaving the spot we had a strong conviction that to this substance might be attributed all the unusual qualities lately observed in the Croton water throughout the city. It had precisely the same taste and odor, but in a very concentrated degree. Of its vegetable nature we entertain no doubt.

A chemical examination of the green matter gave the following results: A portion of it, mingled with water, was gently heated and finally boiled. Upon the first application of a moderate heat, the color quickly changed from a green to a light buff color. When near the boiling point, the whole was converted into a thin mucous substance, and by continuing the heat the odorous matter nearly all disappeared. Some of the green matter, mixed with water, was submitted to distillation, when the odorous principle passed over in union with watery vapor, and condensed in the receiver as a colorless transparent liquid, possessing the characteristic flavor of the original substance. A portion of the same green material was agitated with pure sulphuric ether. After subsidence, the ether, which rose to the surface, was separated and allowed to evaporate. A minute quantity of an oily substance, slightly tinged with green, was thus obtained. The coloring matter was probably due to chlorophyll, the green coloring matter of plants. When examined with a microscope of high power, the green substance was seen to consist of some minute aquatic plant, a detailed description of which is given by Dr. Torrey. There was also observed among it a few of the living animalculæ, such as the microscope usually reveals in unfiltered water from fresh-water ponds. It may be worthy of remark that, so far as I have observed, the apparent number of these living forms is much less in the Croton water now than I have noticed in former examinations.

It is quite evident, that the flavor of the Croton water, so much complained of during the past week or two, is now rapidly disappearing, and that the water has nearly regained its normal condition. I believe the unusual little plant which we have found in it, and which gave it the peculiar flavor complained of, to be of a perfectly harmless character, and consequently that the wholesomeness of the water has not been impaired by it in the least degree. I have drank freely of it during the time when it was in its worst condition, and have partaken of the green matter which we procured from the lake, in its concentrated state, and also after it had been converted into a jelly by heat, without experiencing any ill effects whatever from it. Filtration of the water through the porous filters, now so much in use, was found to separate effectually all the minute floating particles from it, and thus rendered it more palatable.

Upon comparing the present analysis with the results that I obtained in the year 1836, and again in 1842, as well as with the analysis by Prof. B. Silliman, Jr., in 1845, I find that the Croton water at the present day is purer, or, in other words, contains a smaller proportion of inorganic and other constituents, than has been found in it since the liberality and wise forethought of our rulers caused the introduction of this source of countless blessings to our great city.

Respectfully, your obedient servant,

JAMES R. CHILTON.

THE PIONEER OF GAS-LIGHTING IN AMERICA.

In the September number of the American Gas-Light Journal, the name of David Melville, was mentioned in connection with the earliest attempts to introduce gas-lighting into this country. Several private papers of this gentleman have been submitted to us, recording some interesting facts, of which, together with other evidence that our researches have brought to light, we propose to give a brief sketch, for the benefit of such of our readers as may be interested in the history of gas-lighting in the United States.

Captain Melville, whose portrait we present herewith, resided at Newport, R. I., and seems to have been a man of much research, and of a sagacious and inventive genius, and undaunted energy. How much of his first patented invention he borrowed from Europe, does not appear; but there is evidence that in 1811, and probably earlier, he was engaged in those experiments which enabled him at last to perfect his gas-apparatus, for which the patent is dated 18th March, 1813. A portable gas-apparatus was also patented by him on the 23d of September, 1815, as will be seen from the specification at the close of this article. In 1816 and 1817, he was employed in some experiments for furnishing light-houses with the gas-apparatus. Failing in this project, he some years later obtained a patent, which he sold to the United States Government, for increasing, by a simple and scientific contrivance, the intensity of the light of the ordinary oil-lamps used in light-houses; and he, also, while prosecuting these experiments, discovered a valuable and effective method for preventing the frost-coating of light-house windows, by which, during severe weather, the lights were often obscured, and many vessels wrecked and lost.

In the beginning of the year 1813, Captain Melville, with a view to obtain funds and other facilities for bringing into public use the gas-apparatus, which he had just completed, formed a copartnership with Captain Winslow Lewis, a constructor of light-houses, doing business in State street, Boston. Arrangements were immediately made for lighting with gas the bath-house at Newport, and several contiguous apartments. By the middle of February, the whole was completed, and the public were invited to examine and see for themselves the perfection and efficiency of the new method of lighting. We insert two of the advertisements on this subject, which were inserted in the *Newport Mercury* of the 20th and the 27th of February, 1813.

ADVERTISEMENT NO. I.

GAS-LIGHTS.

The Proprietors, to gratify the public curiosity, and to be in some degree remunerated for the very great expense which a long course of experiments have occasioned him, will have the Bathing-House and the adjoining apartments lighted up with gas, to the exclusion of every other species of artificial light, for public exhibition, on Monday and Thursday evenings, when a person will attend to give every necessary information. Price of admittance, 25 cents each person.

Newport, February 19th, 1813.

ADVERTISEMENT NO. II.

"Let there be Light."

The Subscriber, having received from the President of the United States, Letters Patent for an improvement in the GAS LAMP for lighting manufactories, mines, mills, streets, theatres, light-houses, and other buildings with Hydrogenous Gas, or inflammable air, produced by a chemical process on Pit-Coal, in a much more agreeable, and less expensive manner than has hitherto been done by any other method; and having it now in operation in the Bathing-House in this town, every room of which, with the apartments connected with it, are brilliantly illuminated with gas light, to the exclusion of every other species of artificial means; he most respectfully invites gentlemen concerned in manufactories, &c., to call and view it in operation, that they may be able to judge of the utility and advantages of this improvement. Contracts will be entered into for the furnishing and putting up the apparatus in manufactories, &c., in the course of the ensuing summer, on terms highly advantageous to the proprietors. The gas apparatus is very simple in its construction, and so easy in its management, that any person of ordinary faculties may be taught in one day to manage every part of it effectually, and the trouble will be found infinitely less than that of trimming and tending lamps, to afford the same number of flames.

The gas-lights are in no way offensive, and very agreeable to the eye; and will be found extensively useful in every situation where much light is required, most especially in the growing manufactories of our country, inasmuch as they are less

expensive than those from tallow or oil, and free from the inconvenience and danger resulting from the sparks, and frequent snuffing of lamps and candles—circumstances tending greatly to diminish the hazard of fire, and proportionably to diminish the rate of insurance on buildings and materials subject to that devouring element.

In offering to the public patronage a discovery which holds out so brilliant a prospect of extensive and permanent usefulness to the country, particularly to the manufacturing interests, I should make a sacrifice of feeling, were I to omit this opportunity to express my grateful acknowledgments to those gentlemen of this place, and in different part of the United States, who have aided me in my undertaking, for the information and assistance they have afforded me in the accomplishment of my object.

DAVID MELVILLE.

Newport, February 19th, 1813.

☞ *Letters post-paid will be duly attended to.*

Considerable interest seems to have been awakened, and in order to make the invention still more widely known, it was proposed to light up in a similar way some suitable rooms in Boston and in Providence. Advertisements were inserted, also, in various newspapers throughout the adjoining States, and circulars were issued, which, with a representation of the apparatus, gave a description of the method of operation. Of one of these circulars a fac-simile will be found on our next page. To secure the confidence of the public, a guarantee was offered, that if the apparatus did not accord with representations, and produce gas so as to light satisfactorily any edifice into which it was introduced, the patentee would make no charge.

By the vigorous methods adopted, public attention was soon attracted, and letters of inquiry poured in from all parts of the country. During the fall of 1813, several buildings were supplied with gas, and the letters in our possession mention a factory at Watertown, Mass., De Wolfe's Arkwright factory, and the Wenscott Manufacturing Company's establishment, near Providence, R. I., as among the first to receive the gas-lights.

As might have been expected, similar prejudices and difficulties to those which had long prevented the general use of gas in England, were encountered in this country. At Newport, R. I., just then, the prejudice against Melville's project was all the more formidable from the fact that one David Grieve had, a short time before, failed in the attempt to introduce gas into dwelling-houses and manufactories. And since popular expectation had so recently been raised to a high pitch, and had then been disappointed, it is no wonder that inveterate prejudice took the place of implicit credulity. Other difficulties, however, beset Captain Melville. A workman incautiously entered one of the gas-houses with a lighted candle, and an explosion took place, which carried dismay into every establishment where this unknown invisible agent, so mighty, so destructive, so subtle, and so resistless, was intended to be used. The apparatus itself, too, was at first imperfectly constructed. The cast iron retorts, the tin and copper tubing, the wooden cisterns, and the wooden and iron gasometers, were, from time to time, found to work unsatisfactorily, and several modifications and improvements were successively contrived.

Among other letters of complaint, we find one from the Wenscott Company, dated 9th of December, 1813, in which they say they "cannot make the gas pass from the condenser to the cistern," owing to some obstruction in the tubes, which were supposed to be "choked up with tar." The gasometer, too, was found too small, and contained "only enough for two hours' consumption, instead of three, as calculated." Other difficulties arose from the employment of unskilled workmen, and from the failing confidence of Captain Lewis, who, on the 7th of November, 1813, wrote to Melville, that he had advanced $2,000, and till he saw more success, was indisposed to embark more capital in the enterprise. Perhaps, however, the greatest obstacle of all to the extension of Melville's method of lighting, was its great cost; though, indeed the prices charged seem to have left a very narrow margin of profit after paying all expenses. Ten dollars per light was at first the price of the apparatus, exclusive of the cost of transportation and the erection of the gasometer house and cistern. Nor was this all. As early as the 20th of November, 1813, the prices were advanced to $12 and $13 per light, and from want of time or means, the patentee found himself obliged to contract his business, by refusing to go to set up his apparatus in any distant city, except two or three manufactories there could receive him at the same time; and letters in our possession, show that he actually did refuse on this account, to go to New York, and to Wilmington, Delaware.

The following letter illustrates the influence of some of these hindrances on the growing business of our gas-light enthusiast:

PATERSON, January 6th, 1814.

Sir,—I have received your favor informing me of your terms for the gas-apparatus, and am considerably disappointed at the price you ask for the lights. There are in this village eight cotton manufactories, and more are intended to be built next spring:—One a large woolen establishment, (my own is a wire manufactory.) There are besides a number of other establishments of different kinds, and I had flattered myself that after having made a trial of the gas lights in my manufactory, if they answered the purpose, they might have been introduced into general use, as being safer than the common method of lighting factories.

I have showed your letter and advertisements to some others in the place, and was informed in a manner that I have no reason to doubt the correctness of, that a gentleman from England is now employed in an establishment in New York, where they have used the gas-lights from his construction, that he offered to prepare the necessary apparatus for giving the lights for a sum considerably less than one-third of the price that you named to me; and at all events, the price you ask would not permit us at present to avail ourselves of it, even if we could not obtain them from any other source. I most sincerely wish that the gas-lights were in general use, as I believe they would be highly useful to the manufacturer.

I am, Sir,

Very Respectfully,
Your obedient Servant,
OSHEA WILDER.

The operation of these, and other difficulties, was met by such ability, zeal, perseverance, and address, on the part of Captain Melville, and the progress made was so promising, that Lewis, about the close of the year 1813, wrote to express to his friend his satisfaction at the success attained, and said he was glad to have made such arrangements as that in ten days from the receipt of any order, the apparatus could be completed and on the way to its destination.

To give more publicity to Melville's patent, and to show the superiority of gas lights over those then in common use, a critique was obtained from Professor B. Silliman, which we much regret our space is too limited to copy. It may be found in *The Eclectic Repository and Analytical Review*, Vol. V., page 123, and is dated New Haven, Aug. 18th, 1814. It is entitled "A letter from Benjamin Silliman, Professor of Chemistry, at Yale College, to David Melville, Newport, R. I., patentee of the improved gas-apparatus," and will repay perusal.

Below will be found copies of the documents relative to the portable gas-apparatus, referred to above. At some future time, we shall, perhaps, review Melville's various inventions and claims in another connection. Enough evidence, however, has been produced to show, not only that five years before the introduction of gas into Baltimore from England, it was in public use in Newport, in Providence, and perhaps in the city of New York, but also that a citizen of the United States had received the first patent for a gas-generating apparatus, of which he claimed to be the inventor. Captain Melville, we fear, never reaped from his researches and labor, any adequate pecuniary return.

The above portrait was taken in his 78th year. He died at Newport, R. I., on the 3d of September, 1856, in the 84th year of his age, having been born March 21st, 1773.

In prosecuting our researches in Newport in Sept., we found two venerable men, Otis Chaffee and Joseph Lyon, the former over 90, and the latter about 80 years of age (since dead), who, under the firm of Lyon & Chaffee, brass-founders, *made the gas pipes and fixtures for Captain Melville*, in 1812–13, and from the original entry in their books, we transcribe his account, amounting to the sum of $81 85¼. Among the items are the following:

1812.			
December 21,	Fixing gas-stove		$6 00
" 31,	Making copper pipe		6 50
1813.			
January 3,	do. do. do		6 00
	3 brass chandeliers		15 00
February 2,	6 days' work on gasometer at $3		18 00
" 19,	Altering brass chandeliers		1 75
	Making 4 branches to do		2 00

Among the credits on the above account, is the following:

1815.

October 16, By note for seventy-five dollars, payable in instalments of three dollars per week for 25 weeks.

From this account we see how entirely Captain Melville had involved himself in his laudable and untiring though fruitless efforts to introduce in his native country the use of gas-light, whose benefits he so fully appreciated. We close this article with the specifications above referred to, adding an engraving of Captain Melville's first patented gas-apparatus on the next page, and we are happy that it has fallen to our lot to do justice to his memory, the perpetuation of which, in this connection, we leave to others.

Specification of a new and useful improvement in the application of Carburetted Hydrogen Gas, improved by Osborn Parsons and David Melville, on the original patent, granted to David Melville, dated March 18th, 1813, and all other methods, by making the gas portable by compression with an air-pump:

The improvement consists in attaching a forcing or air-pump to the gasometer, and forcing the gas, as it is generated, into a portable gasometer, made very strong, any size most convenient, which will contain a large quantity of gas, by compression. The portable gasometer can be transported to any distance, for lighting private houses, factories, light houses, &c., &c. Each house, factory, light-house, &c., must be supplyed with a gasometer, the same as described in the specification and plates of David Melville's apparatus, made either of metal or wood. The gas can be let into the gasometer by a tube attached to a stop-cock in the top or side of the portable gasometer; where it can be repurified by passing it through the water in the cistern into the gasometer. One building, or factory, for generating the gas, with good retorts, can furnish the whole of a city, by the application of making it portable, which saves the expense of retorts and trouble of generating the gas where the lights are wanted. Each gasometer-house where the retorts are, can be supplied with portable gasometers, so as greatly to lessen the size and expence of the gasometer as heretofore in use.

OSBORN PARSONS,
D. MELVILLE.

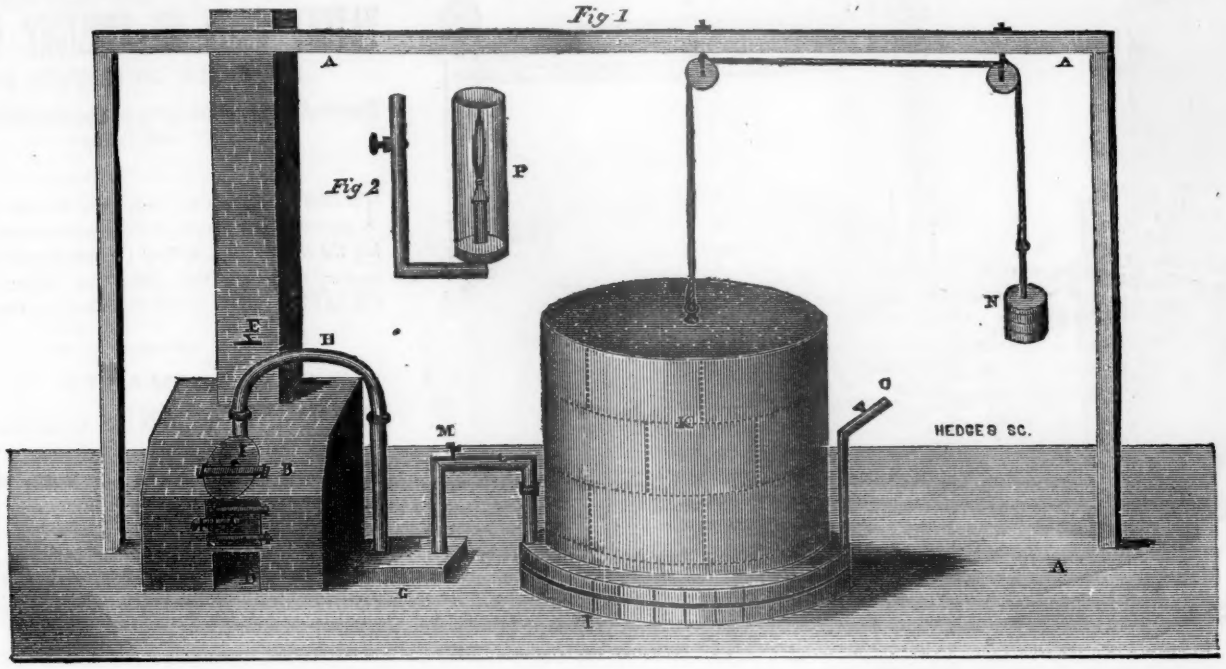
Rhode Island, &c.:

On this twenty-third day of September, A. D. 1815, in their own proper persons, appeared before me, Henry Sherburne, Public Notary for the town and county of Newport, in the State of Rhode Island, duly appointed and engaged according to law, residing in Newport, Osborn Parsons and David Melville, and did severally solemnly swear, that the specification on the other side of this sheet of paper written, "of a new and useful improvement in the application of Carburetted Hydrogen Gas, improved by them, the said Osborn Parsons, and David Melville, on the original patent, granted to David Melville, dated the 18th of March, A. D. 1813, and all other methods, by making the gas portable by compression with an air-pump;" that they verily believe themselves to be the original inventors or discoverers of the said improvement, and that they are citizens of the United States.

In testimony whereof, I have hereunto set my hand, and affixed my
[L. S.] notarial seal, at Newport, the day and year above written.

H. SHERBURNE, Public Notary.

FAC-SIMILE OF MELVILLE'S GAS-APPARATUS AND SPECIFICATION.



Melville's Patent improved Gas-apparatus.

REFERENCES TO THE PLATE.

Fig. 1.

AAA. The floor and part of the structure of the gasometer-house.

B. A furnace in which a retort is set.

C The door of the furnace, where the fire is placed.

D. The ashes-hole.

E. The damper, or register, to regulate the draft of the furnace.

F. A cast iron retort, with the door fixed on, in which the coal is put to produce the gas.

G. The condensor and bath.

H. A pipe which conducts the gas from the retort to the condensor and bath, where it passes several times through the water, by which it is washed and purified.

I. A cistern set in the ground, and kept filled with water, by means of an aqueduct, the water from which passes through the bath, to a drain from the gasometer-house.

K. The gasometer, or reservoir, which is suspended in the cistern of water by a rope or chain leading over pullies.

L. A pipe which conducts the purified gas from the condensor through the water in the cistern to the gasometer, where it is reserved for use.

M. A stop-cock to let off the gas until it becomes inflamable, and to burn it from, when the gasometer is full, to prevent its escaping underneath.

N. A balance of weights, to hold the gasometer in suspension, and (by taking off one or more of the weights,) to give force to the gas when necessary.

O. A pipe which conducts the gas from the gasometer-house to the apartments where the lights are wanted, where it issues from the burners, and on the application of a taper, will burn with a brilliant flame, without smell or smoke. The burners are fitted with keys by which the flames may be regulated, or instantly extinguished, which operation may be performed on the whole at once, (be there ever so many,) by means of a single key in the main tube.

Fig. 2.

P. The form of the burner from which the gas issues, with the tube glass, and key to regulate the flame, (on a larger scale.)

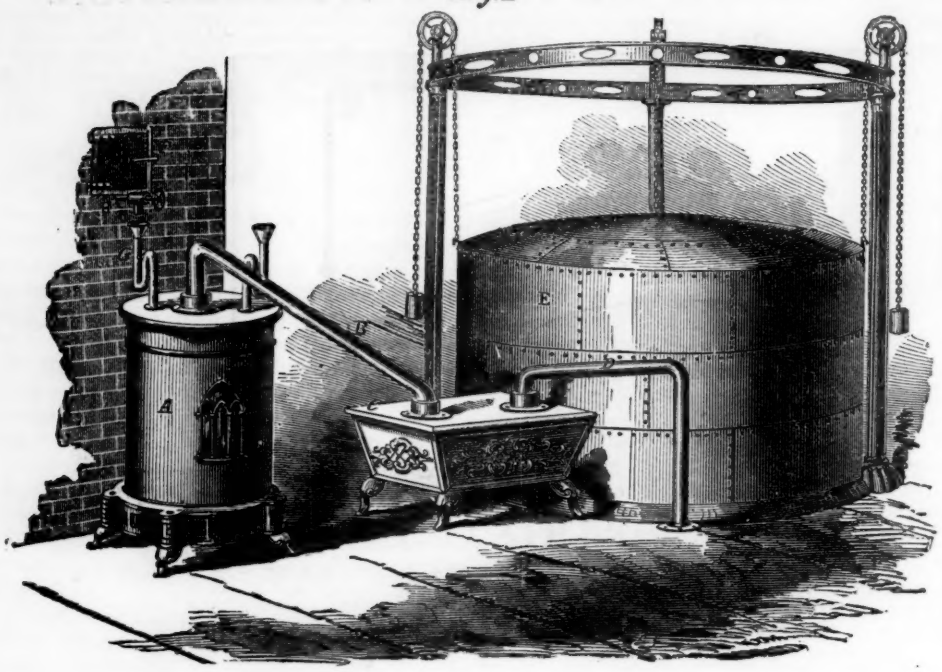
SPECIFICATION OF THE MODE OF OPERATION.

A QUANTITY of coal in proportion to the number of lights required, must be placed in the retort, and the door screwed on and luted tight with a lute of clay and sand; this done, a strong heat being applied by means of a fire kept up in the furnace, hydrogenous gas, or inflamable air will be driven out of the coal confined in the retort, and forced through the water in the bath, in which the condensor is immersed; by passing through the water, the bitumenous matter which is a component part of the coal is separated from the gas, which is washed and purified. From the condensor, the purified gas is passed by a pipe through the water in the cistern, to the gasometer, where it may be reserved for use. As the gas passes in, the gasometer will be raised up until it is filled, when full, (to prevent the escape of the gas underneath, and the smell which it occasions when it issues without burning,) it may be burned from the cock on the pipe which leads from the condensor to the gasometer. When the lights are required, by taking one or more weights off the balance, the gasometer will bear with so much the greater force on the volume of gas contained in it, by which it will be propelled through the pipes to any distance, and in any direction to the burners, which are situated where the lights are wanted. Immediately on the issuing of the gas from the aperture of the burner, and coming in contact with the oxygenous gas of the atmospheric air, it will take flame on the application of a taper, and burn with a brilliant light without smell or smoke as long as there is any gas in the gasometer. The burners are fitted with keys, by which each separate flame may be regulated to give more or less light at pleasure, or be instantly extinguished; and the whole, (be there ever so many,) may be regulated as to the size of the flame, or they may be instantaneously extinguished by turning a key in the main tube.

The quantity of coal required for any given number of lights, will vary with its quality The usual quantity is about forty pounds for fifty flames, equal to that of a moulded candle of six to the pound, to burn three hours. Two pecks of coal, weighing forty pounds, put into the retort, will leave a residueum of near three pecks of coak, weighing twenty-eight pounds. The coak is better for many uses than raw coal, and if used in the furnace, will be nearly sufficient fuel for each succeeding operation.

NOTE.—*Any person or Company, wishing to be furnished with the improved Gas-apparatus, are requested to apply to* WINSLOW LEWIS, *Boston, or* DAVID MELVILLE, *Newport, R. I., who are the sole proprietors of the patent right.*

Fig. 1



MARSH'S

PATENT ROSIN OR SUNLIGHT GAS-WORKS,

FOR PUBLIC OR PRIVATE WORKS.

Patented in 1858 and 1859, in the United States, Canadas, and Europe.

THESE Works are the only ones in existence that can be operated any length of time, continuously, *without opening the Retorts, and without the least deposit of carbonaceous matter*, either in the *Retorts or Pipes*, producing the CHEAPEST AND BEST Illuminating Gas.

MANUFACTURED BY

ALFRED MARSH & CO.,

ENGINEERS AND CONTRACTORS

FOR THE ERECTION OF

Private or Public Coal or Rosin Gas-Works.

OFFICE, - - - - - - 241 BROADWAY,

NEW YORK.

For further descriptions, commendations, &c., send for circular, or call at the office, where the Works may be seen.

GAS-LIGHTING BY THE ELECTRIC-SPARK.

IN the article upon "Gas-lighting by Electricity," in the last number of the AMERICAN GAS-LIGHT JOURNAL, a description was given of the two methods that have been patented, and presented to the public. It seems but fair now, that the main features of these plans should be compared, that they may be informed relative to an invention so new, and that promises to be generally adopted into use, in one form or the other.

Let us, then, look at the main features and merits of these two plans, pursuing the order in which they were described in our former article. The plan by the heated platinum wire depends for its effective power solely upon the current from the voltaic battery. This being more sluggish than other currents, is more easily adapted to the heating of the little platinum wires, one of which is placed permanently over each burner, and directly in the jet of gas to be ignited. As these wires are heated by offering resistance to, or checking, the current in its passage over the conductors, a sluggish current becomes the safer one to use. As the number of these wires to be heated is increased, the number of pairs of plates to be used must be proportionably increased; till, where a large number of burners is to be ignited, the battery will become immense—or else, to avoid this, the number of circuits must be increased, and switches used, which practically prevents this method from ever bocoming instantaneous in action. Five hundred pairs of plates, when in use, other things being equal, wear out just as rapidly as a single pair of plates; hence it becomes a very important desideratum to reduce the battery to as few pairs of plates as possible, this being the main part that wears out, and requires frequent outlays to replenish it. This plan, also, requires that an *unbroken m·tallic circuit* should be preserved to every burner—the least break in the circuit, though it be but the hundredth part of an inch, being sufficient to prevent all action of the battery, and to defy the skill of the best operator to light a single burner till that break is repaired. This current, also, can give you no intimation at what point along the line such break may be found. You are compelled, therefore, to search through its entire length to find it. In the mean time the street, or building, or room, must remain in darkness till the repair is made. Hence, it becomes important to have a plan which does not require this extreme care to preserve an unbroken metallic circuit, and which, in case of a serious break, will not only light a large portion of the burners in the street or building, but will tell you where, along the line, to find the break or breaks. In the plan with the heated platinum wire, breaks are, and must be, extremely liable to occur. This liability arises from two main causes: the want of a truly constant battery—a thing not yet discovered—and want of exact uniformity in the length, thickness, and quality of the numerous platinum wires to be heated—an inequality in any of these particulars, though imperceptible to the senses, being enough to leave one wire heated barely to redness, while another is carried up to a white heat, or even to fusion. Thus, the circuit is broken before the first lamp can be lighted. And after, where the wire stands permanently in the flame, the electric current having carried it to its highest point of endurance in heat, the superadded heat from the ignited gas is sufficient to fuse it. The only thing that seems to promise comparative security and success to this plan, is some method of throwing the heated wire through and out of the way of the flame of gas. This plan has been secured to Wilson by a patent, granted February, 1858, for his "Vibrating Electric Conductor," generally known as the plan of lighting by the electric spark, which proceeds upon an entirely different principle from that we have just described. The voltaic battery used, even where a large number of burners is to be lighted, is reduced to the very smallest amount, or it may be dispensed with altogether, according as we make use of the current induced by the battery, or the magnetico-electric machine. The inductive apparatus used, which is the main expense in this plan, does not wear out at all; while by reducing the battery-power, as it does, a hundred fold, it reduces the expense for repairs to a mere cypher—two pairs of plates, with the inductive apparatus, being amply sufficient to do the work of as many hundred pairs of plates where the wire is to be heated. This plan (Wilson's) makes use of the electric spark above, and does not depend upon an unbroken metallic circuit. On the contrary, there is a small break in this circuit at each burner, across which the spark leaps; and wherever there is a break, there the spark appears. If that break be out of place, or of unusual length, the spark, by producing a sharp cracking sound, and a brilliant light, telegraphs the operator of its existence and location, and the repair is easily made. This current does not heat the wire, but enables us to so place the platinum point at each burner, that it is rarely raised to a red heat by the flame. In this plan there is no danger from an overcharge of battery-power—the current from the strongest battery being conveyed with perfect safety over the smallest wire, with no other result than a spark of greater volume to ignite the gas. So long as the wire is connected with one pole of the coil, a large proportion of the burners in a building may be lighted, even though the wire from the other pole be entirely broken away. The ease with which this current may be controlled is sufficiently attested by the fact that it has been sent over six hundred miles of telegraph wire with the ordinary indulation, and without any relay batteries to aid it. And the rapidity with which it acts is proved by the fact that five hundred sparks may easily be generated in a minute, each one of which is amply sufficient to light the lamps in the largest hall in New York, or the 40,000 public lamps in this metropolis.

A single mistake in our former article should be corrected. Mr. Gardiner's claim for letting on and shutting off gas, is not construed as covering the *doing it by electricity*, but doing it *gradually, or by degrees*. The doing it by electricity is still a public right.

Thus, we present side by side, the means, by Wilson's patent, of lighting the public lamps of an entire city by a flash of electricity, and of extinguishing them as quickly through Symmes' patent burner, by an alteration in the pressure of gas, without interfering with private consumers.

FAIR OF THE AMERICAN INSTITUTE.

AFTER a successful month, this institution has closed its doors for the year. Without any special matters of interest to record, we need only enumerate the contributions appropriate to our journal. Mr. J. K. Brick, of Brooklyn, N. Y., exhibited some fine specimens of clay retorts, of his own manufacture, that were much admired; Code, Hopper & Gratz, of Philadelphia, were represented by a noble dry gas-meter—the only one on exhibition; Wilson's electric spark, and Gardiner's electric battery, were in operation nightly; Mr. William Roy's vitrified drain pipes for public and private sewers; Albert Potts' lamp-post letter boxes, or gas-light mail-stations, attracted universal attention, one of them being arranged on a lamp-post in the garden; Butler & Hosford's portable gas-lamps; Werner's wood-gas apparatus deserves more space than we can spare to it in this number: it lighted up the north end of the saloon every night with a clear and brilliant flame; Gas cooking stoves; Burning fluid lamps, which the men in charge handled very gingerly, and thus escaped their deserts; and a few minor gas-fixtures completed the collection.

OUR NON-SUBSCRIBERS.

THE unfortunate brotherhood of this persuasion, lulled into security by the receipt, gratis, of the first four numbers of the AMERICAN GAS-LIGHT JOURNAL, will experience a slight shock of earthquake in their nervous systems by the absence of the fifth. The only way that we can see to continue the file, and restore an equilibrium, is to pay up.

ALFRED F. JAMES.
Collection, Exchange and Land Agency,
GALVESTON, TEXAS.
REFERENCE:
John B. Murray, New York.

GEORGE PARISH OGDEN,
Banking, Exchange, and Collecting House,
Troy, N. Y.
Northern and Eastern Collections made and remitted for on day of receipt.
Bills of £1 and upward for sale, payable throughout Great Britain.

AMERICAN BANK NOTE COMPANY.
CERTIFICATES OF GAS LIGHT SHARES and Bank Notes Engraved with the greatest skill and promptness.
MERCHANTS' EXCHANGE BUILDING, WALL ST., NEW YORK CITY.

MANHATTAN SAVINGS INSTITUTION,
No. 644 Broadway, New York.
Assets, January 1, 1859, $1,183,600.98.
Open daily from 9 A. M. to 7 P. M.
A. A. ALVORD, *Sec'y.* E. J. BROWN, *Pres't*

SEYTON & WAINWRIGH.,
37 WILLIAM ST., NEW YORK CITY.
STOCK AND EXCHANGE BROKERS,
GENERAL RAILROAD AND EUROPEAN AGENTS.
Stocks and Bonds bought and sold at the Board of Brokers, and at private sale. Railroad and other loans negotiated, and collections made for home or European account. *Exchange on London.*
C. S. SEYTON. J. H. WAINWRIGHT.
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Duncan Sherman & Co., N. Y. — Peter Wainwright, Esq., Boston.
Richard Irvin & Co., " — Ogden, Fleetwood & Co. Chicago.
John B. Murray & Co., " — Erastus Corning, Esq., Albany.
Union Bank, " — Wm. Fisher & Son, Baltimore.
Webster Bank, Boston. — J. P. Kilbreth, Cincinnati.
E. F. Satterthwaite, London. — Geo. Parish Ogden, Troy.
Alfred F. James.

JOHN B. MURRAY,
BANKER,
Proprietor of the AMERICAN GAS-LIGHT JOURNAL,
No. 40 Wall St., Manhattan Bank Building,
NEW YORK CITY,
DEALER IN
GAS-LIGHT STOCKS OF CITIES.
The accounts of Country Banks and Bankers received on liberal terms.
Interest allowed on Deposits by special agreement.
COLLECTIONS
Made throughout the UNITED STATES, CALIFORNIA, CUBA, the BRITISH PROVINCES, SOUTH and CENTRAL AMERICA.
DRAFTS issued for large or small sums, payable at banks in every city and town in the United States.

DISSOLUTION OF COPARTNERSHIP.

THE COPARTNERSHIP HERETOFORE EXISTing between the subscribers, under the firm of JOHN B. MURRAY & CO., is this day dissolved by mutual consent.

The business will be continued by JOHN B. MURRAY, in his own name, and on his own account, and he is alone authorized to sign the name of the late firm in liquidation.

JOHN B. MURRAY.
JOHN W. BROWN.

New York, October 14th, 1859.

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SEWING MACHINES.
No. 505 BROADWAY, N. Y
The very best in use. Send for a Circular.

LADD, WEBSTER & CO.,
No. 500 Broadway, (opposite the St. Nicholas Hotel,)
Invite public attention to their IMPROVED TIGHT STITCH SEWING MACHINES, which for beauty of construction, elegance of finish, and perfectness in Sewing, are unequalled by any in the market.

LESTER'S SEWING MACHINES,
LOCK-STITCH,
Prices from $50 to $150.
No. 483 BROADWAY, NEW YORK.
Adapted to family use—doing light as well as heavy sewing.

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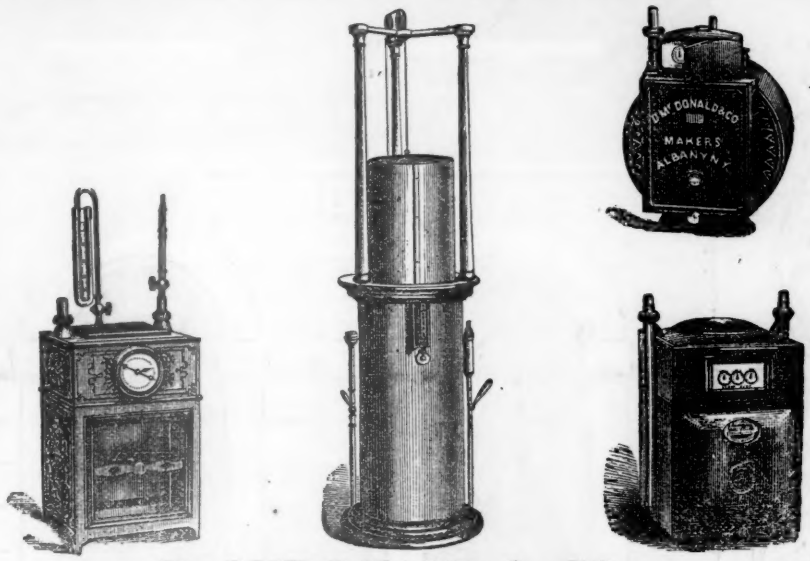
FAMILY SEWING MACHINES,
The best family machine in the market.
Prices from $30 to $50.
504 BROADWAY, NEW YORK.

SINGER'S SEWING MACHINES.
New Styles—Prices Greatly Reduced.
No. 458 BROADWAY, N. Y.

GROVER & BAKER'S
CELEBRATED NOISELESS
SEWING MACHINES,
AT GREATLY REDUCED PRICES,
No. 495 BROADWAY, NEW YORK.



D. McDONALD & CO.,
No. 51 LANCASTER STREET, ALBANY, N. Y.,
MANUFACTURERS OF
STATION METERS, WET METERS (WITH IRON OR TIN CASES), DRY METERS, FANCY, EXPERIMENTAL AND SHOW METERS, GAS-HOLDERS FOR TESTING PRESSURE GAUGES, &c.

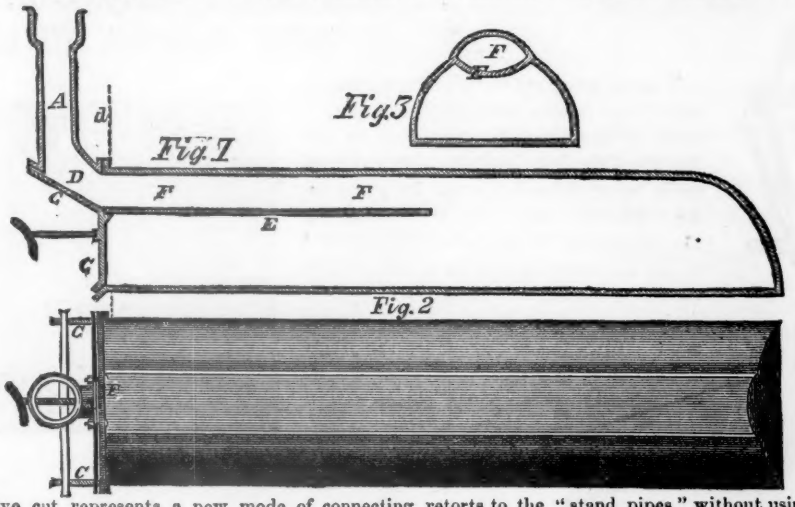
We wish to call the attention of Gas-Light Companies, Gas Engineers, and all others who contemplate the purchase of Gas Meters, to the fact that we are now manufacturing, and prepared to fill all orders in the above line upon terms as favorable as any other manufacturers in the country.

Having improved, simplified, and so far perfected the mechanical construction of our Meters as to render them unquestionably equal, if not superior to any others now in use, we can confidently offer them to purchasers as such. The extreme simplicity of our Dry Meters renders their wear and liability to get out of order, less than any other meter in the Market.

First-class workmen only employed, and the best materials used. All work warranted.

☞ Meters sealed by the State Inspectors, according to the laws of New York.

SYMMES' PATENT GAS RETORT.



THE above cut represents a new mode of connecting retorts to the "stand pipes" without using "mouth pieces," thus saving the drilling the flanges and making the joints, as well as some 250 lbs. of casting, and several bolts for each retort set. A narrow piece of the door C. closes the lower end of the stand-pipe. The plate E. is a separate piece, thinner than the retort, and may be secured to the door C., or slid over grooves made in the retort for that purpose. The retort is set in the ovens to the dotted line *d*. This mode of connecting may be applied to clay as well as iron retorts.

For information concerning the above, or for the castings, address

H. K. SYMMES, Newton, Mass.

BRAMHALL, HEDGE & CO.,
442 BROADWAY, N. Y.,
OFFER FOR SALE
SHAW'S PATENT

Gas Cooking Stoves, 3 sizes,	Gas Hatters' Irons,
Gas Steak Broilers,	Gas Laundry Stoves,
Gas Smoothing Irons,	Gas Bath Room Stoves,
Gas Nurse Lamps,	Gas Heating Stoves,
Gas Bread Toasters,	Gas Oyster or Bird Roasters,
Miniature Gas Furnace,	Gas Ovens, 5 sizes.

CALL AND SEE THEM AT
442 Broadway, between Howard and Grand streets.

OFFICIAL.

New York State Inspector of Gas Meters,
OFFICE No. 561 BROADWAY.

Gas Meters proved since 4th May, 1859 11,269
Number of proving apparatus tested..... 36

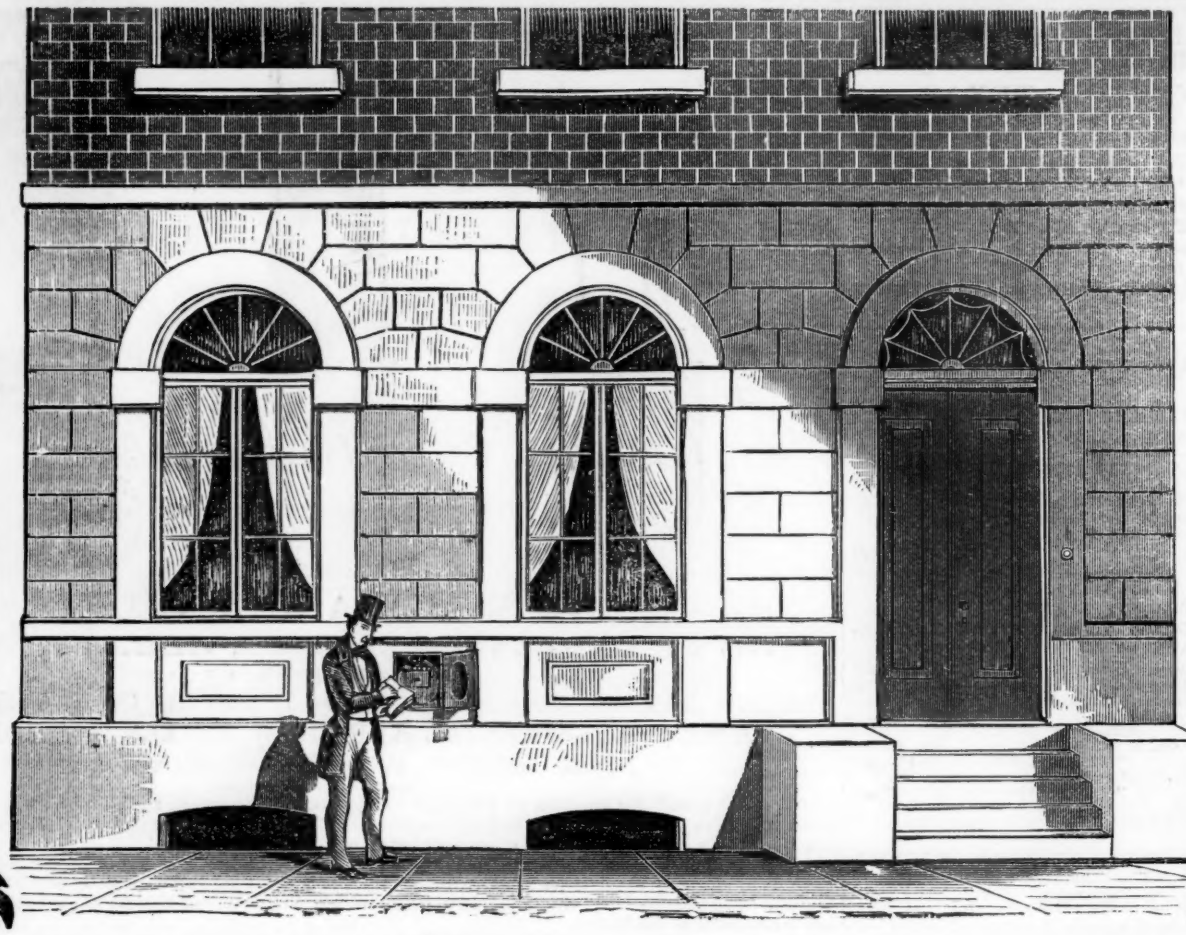
NEW YORK, Oct. 31, 1859.

GEORGE H. KITCHEN,
State Inspector.

DONNELLY & ROONEY,
BRASS FOUNDERS,
144 *GRAND STREET, NEW YORK.*
Jobbing promptly attended to.

JOHN GILKISON & CO.,
90 BEAVER STREET, NEW YORK, AGENTS for British Manufacturers of Fire Clay Retorts, Fire Clay Pipes from 3 to 36 inch drain for Sewerage and Water purposes, Cast Iron Pipes and Retorts, Wire Rope, &c., &c.

CLEGG'S TREATISE ON COAL-GAS.—THIRD EDITION.—This valuable work must arrive now in a very few days. It is illustrated by plates, and will be invaluable to gas companies and gas engineers. We have orders for nearly all the copies that will be received.

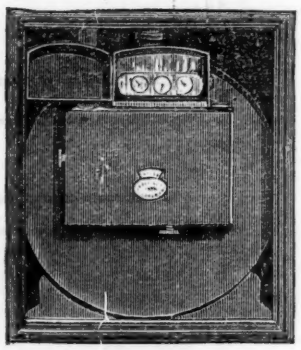


IMPROVED MODE OF SETTING GAS METERS IN THE WALLS OF BUILDINGS.

Patented July 5th, 1859,

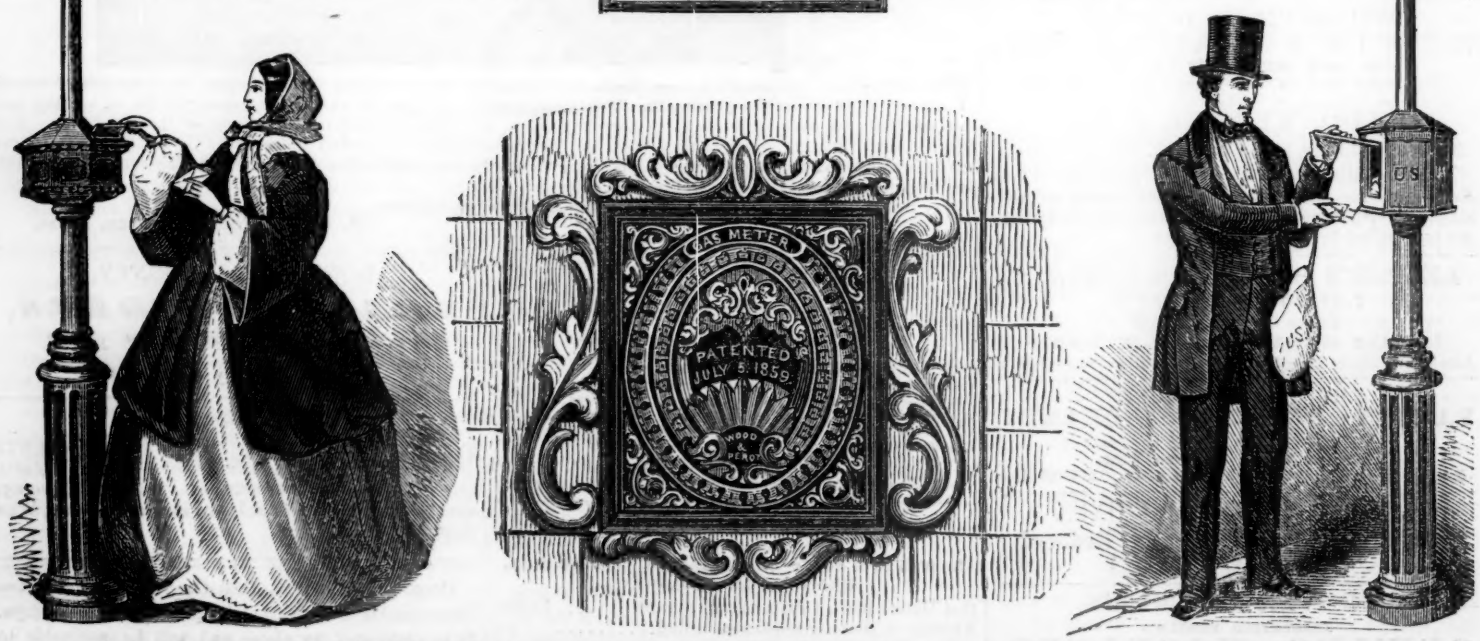
BY ALBERT POTTS, PHILADELPHIA.

The advantage of this improvement consists in the facility with which the Meters may, at any time, be inspected by the Agents of the Gas Company without necessarily being obliged to enter the premises. As will be seen and readily understood from the Engraving, the Meter is nicely adjusted to an auxiliary case which is imbedded in the Front Wall of the Building, or any convenient place above the Level of the Pavement. With this improvement the Meter is less liable to Freeze in Winter season, as the inside portion of the Receptacle is



exposed to the heat from the Parlor or Room. The face of the Meter is also protected by means of a thick Pad, placed between it and the Outside Door. The Outside Door is secured by Lock and Key. To the consumers of Gas this improvement is of great utility, as with it they are freed from many annoyances; and no loss of time, and no unnecessary trouble, are required of them in the Agent's act of inspecting the Gas Meters.

☞ For further information, please address the Patentee as above.



United States Mail-Stations fixed to Lamp-Posts (Potts' Patent) to provide Increased Postal Facilities for large cities.

(See American Gas-Light Journal of October 1, 1859, page 60.)

ELLIMAN BROTHERS,

COMMISSION MERCHANTS,

217 PEARL ST., NEW YORK.

IMPORTERS OF BELGIAN FIRE-CLAY GAS RETORTS,

AND

DEALERS IN TILES, ARCH-BRICKS, FURNACE DOORS, MOUTH-PIECES, COVERS, AND ALL OTHER FITTINGS, OF THE MOST APPROVED PATTERNS, FOR SETTING CLAY RETORTS.

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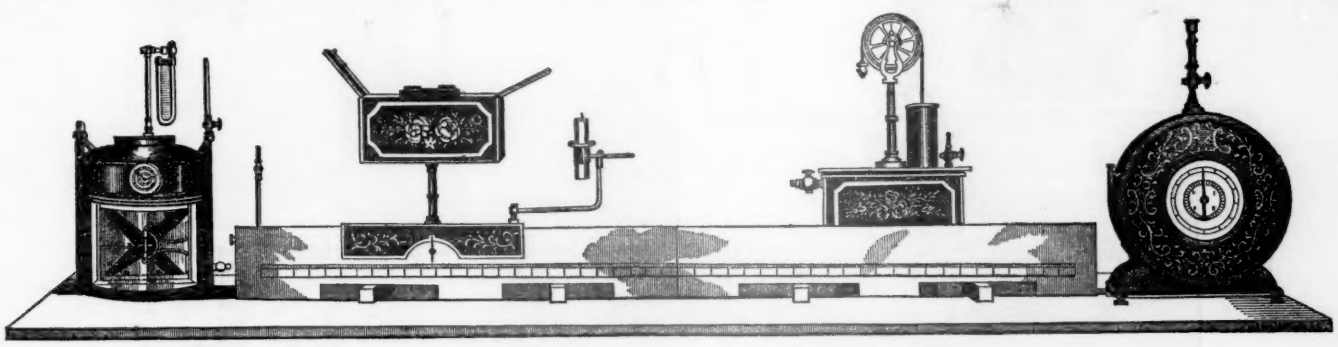


PRESSURE REGISTERS,

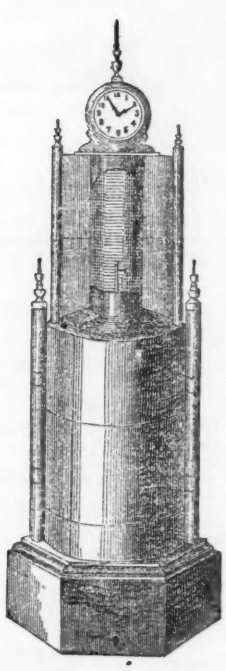
PRESSURE INDICATORS,

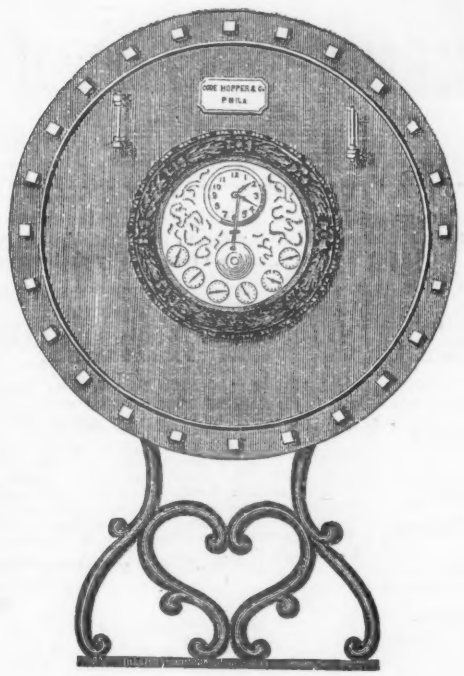
PRESSURE GAUGES,

PHOTOMETERS,

GOVERNORS,

STATION METERS,





CUSTOMER METERS,
(Wet and Dry.)

EXPERIMENTAL METERS,
(Wet and Dry.)

SHOW METERS,
(Wet and Dry.)

METER PROVERS,

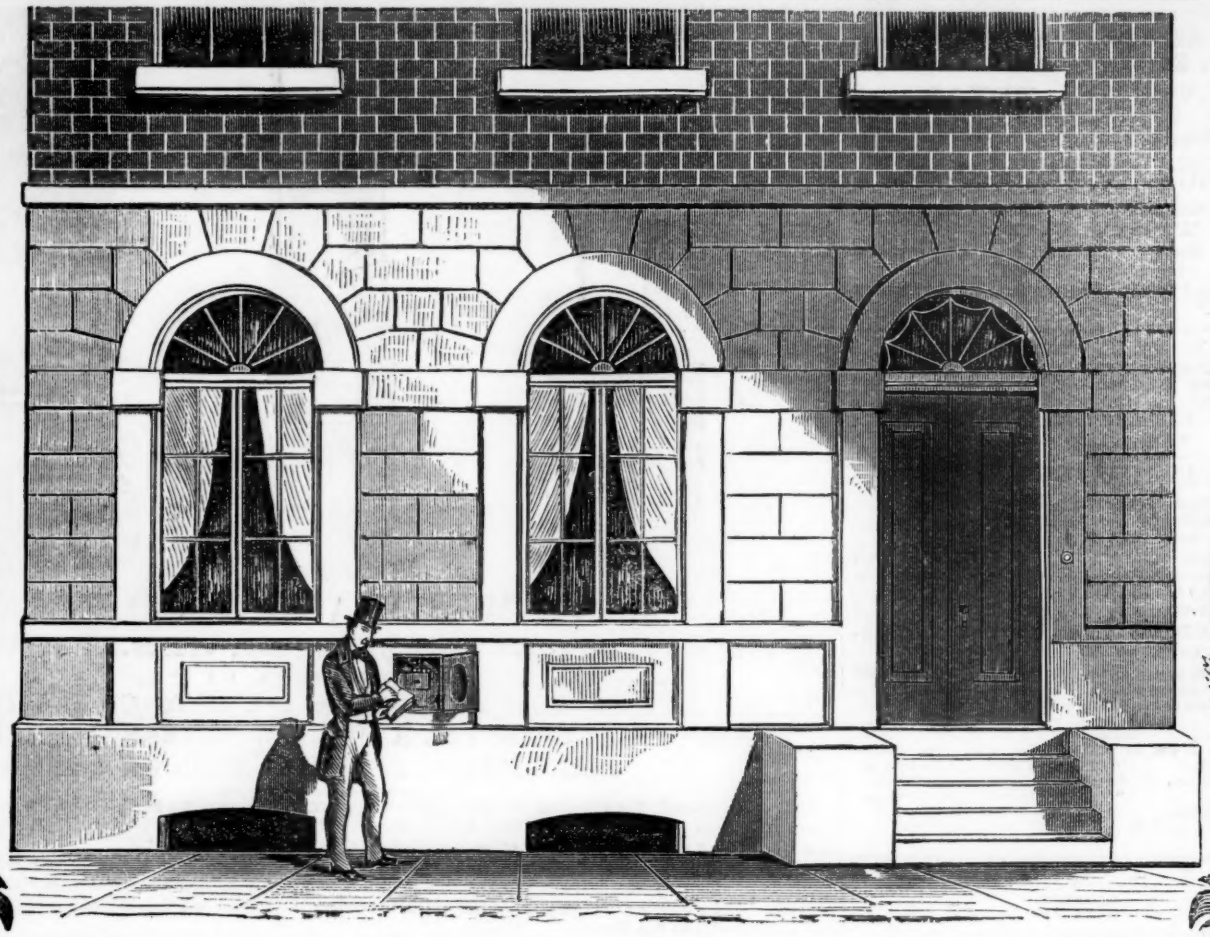
CENTRE SEALS,
&c. &c. &c.

An experience of more than Twenty-two Years, during which time we have manufactured a larger number of Gas Meters than any other establishment in the world, gives us confidence in calling the attention of parties desiring a superior Meter, either wet or dry. All our meters are tested, separately, by a sworn Meter Inspector, and we guarantee to give satisfaction in every particular.

We desire to call attention to our *Station Meter*, having made two very important improvements, by which we obtain an increased measuring capacity of more than twenty per cent., and do away with the stuffing box at the end of the drum shaft.

Our Patent Rotary Valve Dry Meter is used by more than *One hundred and seventy-five* Gas Companies in the United States, giving entire satisfaction. We therefore recommend it, believing it to be the best Dry Gas Meter manufactured.

CODE, HOPPER & GRATZ,
1500, 1502, 1504 FILBERT STREET,
PHILADELPHIA.



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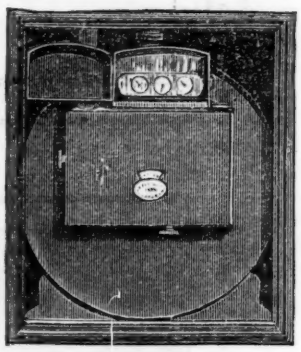

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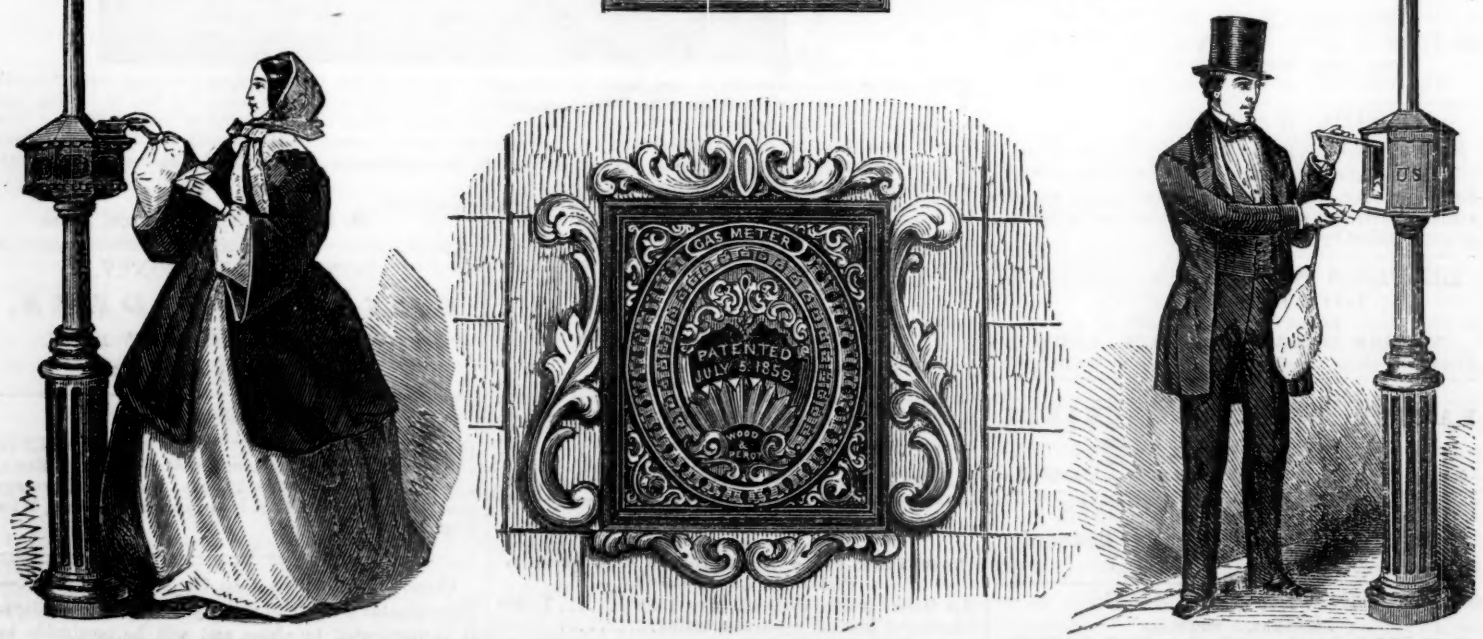

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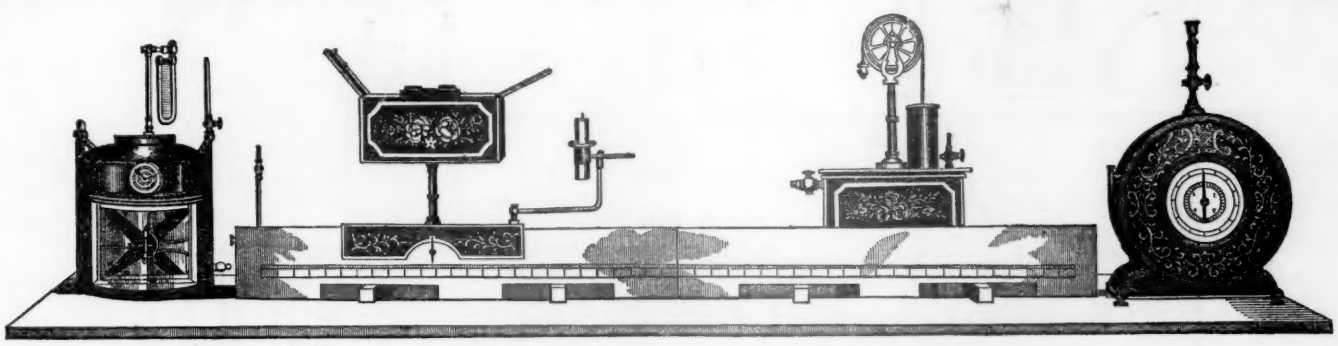

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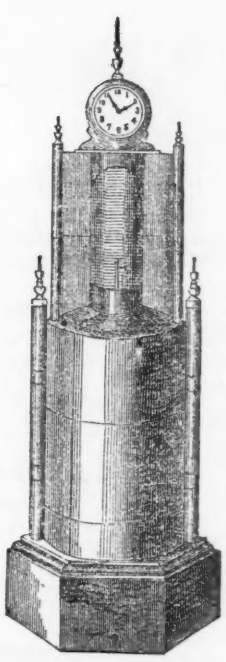

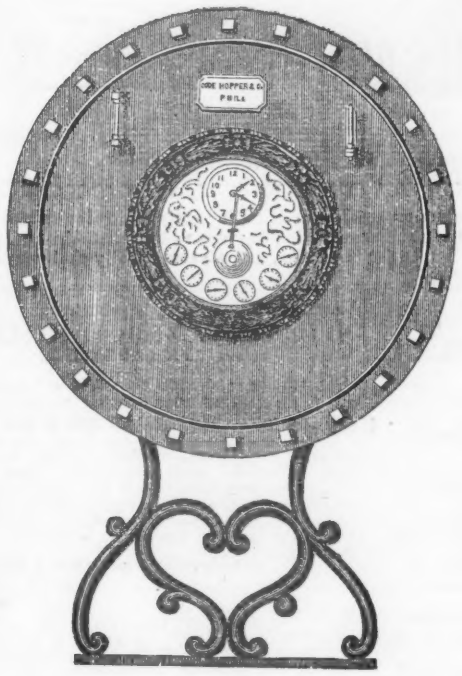

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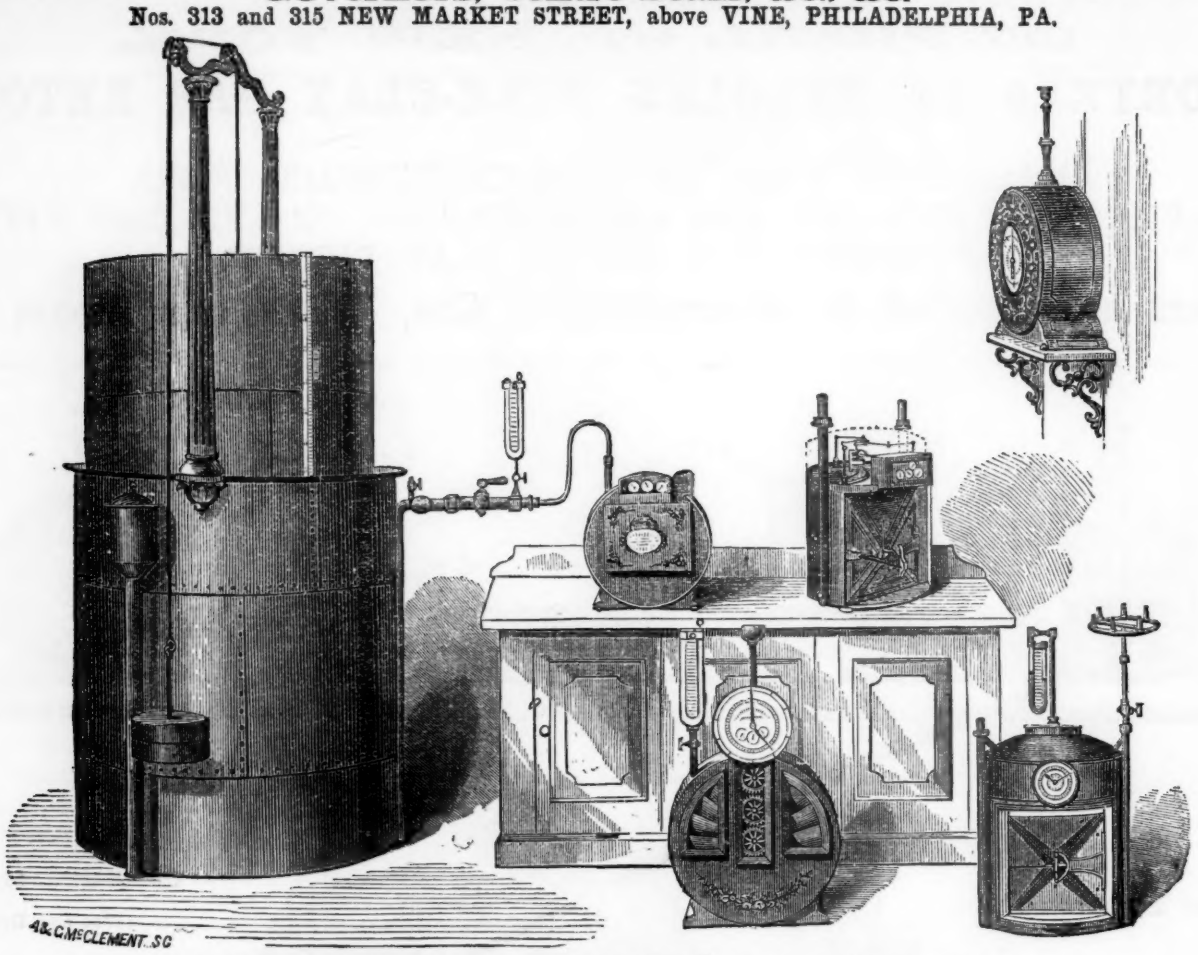
ROBERT JONES.] **JONES & LENNIG.** [JOSEPH LENNIG.

MANUFACTURERS OF

CUSTOMER METERS (Wet and Dry), **STATION-METERS, EXPERIMENTAL METERS,**
Show-Meters, Meter-Provers, Burner-Provers, Pressure-Registers, Pressure-Indicators, Pressure-Gauges, Mercury-Cups,
Governors, Centre-Seals, &c., &c.
Nos. 313 and 315 NEW MARKET STREET, above VINE, PHILADELPHIA, PA.



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An experience of over *fourteen years* gives us confidence in calling attention to the superior instruments, both Dry and Wet, we are now manufacturing.
Our materials are of the best in use; the strictest attention is given to workmanship, and we guarantee entire satisfaction to all purchasers, pledging ourselves to fidelity and promptness. Our establishment is open for inspection, and we respectfully challenge superiority of workmanship.

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PASCAL IRON WORKS,
[Established 1821.]
PHILADELPHIA,
MANUFACTURE
WROUGHT IRON WELDED TUBES,
For Gas, Steam or Water.

LAP-WELDED BOILER FLUES.

Galvanized Wrought Iron Tubes.

ARTESIAN WELL PIPES,
Of Wrought or Cast Iron, screwed together, flush inside and out.

Gas Works Castings,
RETORT AND BENCH CASTINGS FOR COAL GAS WORKS.

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Bends, Branches, Drips, &c.

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GEORGE H. KITCHEN & CO.,
MANUFACTURES OF FIXTURES
FOR GAS LIGHT PURPOSES,
WOOD'S BUILDING,
No. 561 Broadway, New York,
Office of the Inspector of Gas Meters for the State of New York.

NEW YORK FIRE-BRICK MANUFACTORY.
Branch Works at Kreischerville, Staten Island.
B. KREISCHER & CO.,
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Gas House Tiles and Fire Bricks of all shapes and sizes. Fire Mortar, Clay, and Sand articles of every description made to order at the shortest notice.
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LOCKE & CRAIGIE,
PLUMBERS AND GAS-FITTERS,
No. 12 East Twentieth Street, New York.

LOCKE, CRAIGIE & CO.,
Gas-Fittings, Chandeliers, Brackets, Globes, &c.
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☞ Particular attention paid to country work.

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MERRICK & SONS, Engineers,
MANUFACTURERS OF EVERY DESCRIPTION OF
GAS MACHINERY,
Retorts, Bench Castings, Condensers, Washers, Scrubbers, Wet or Dry Lime Purifiers, Coke Wagons, Fire Tools, Wrought Iron Grate Bars, Gas-holders, either telescopic or single, with suspension frames complete; Wrought Iron Roof Frames, for iron or slate; Stop Cocks, Exhausters, Steam Pumps, Boilers and Tanks, Steam or Hand Air Pumps for proving Street Mains, Centre Seals, Governors, Wrought or Cast Iron Lime Sieves for Purifiers, Purifier Hoisting Machines, &c., &c.
Address— MERRICK & SONS, 5th and Washington Streets, Philadelphia.

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S. B. BOWLES,
No. 12 GOLD STREET, NEW YORK,
MANUFACTURER AND DEALER IN
Railroad Supplies,
Including Gas Apparatus for Cars, of the most improved design.

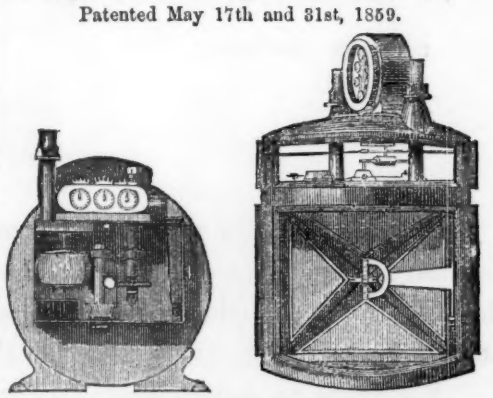
Patent Pyro Clay Gas Retorts,
THOS. HOADLEY, PATENTEE,
Wishes to call the attention of Gas Engineers to these Retorts as a very superior article.
REFERENCES:
Gas-Light Works, Buffalo, N. Y.
" Cleveland, O.
" Detroit, Mich.
THOS. HOADLEY,
34 Front street, Cleveland, O.

TIFFANY & CO.,
JEWELLERS AND IMPORTERS OF
ELEGANT ARTISTIC PARIS GAS CHANDELIERS,
BRACKETS, PENDENTS, &C., IN BRONZE AND GILT.
No. 550 Broadway, New York.

NEW YORK BELTING AND PACKING CO.
MANUFACTURERS UNDER GOODYEAR'S PATENT, OF
VULCANIZED RUBBER FABRICS,
ADAPTED TO MECHANICAL PURPOSES,
MACHINE BELTING, STEAM PACKING, HOSE,
GAS FITTING, &c.
Nos. 37 and 38 Park Row, New York.
JOHN H. CHEEVER, *Treasurer*

BERGEN IRON WORKS.—Established 1833.
R. A. BRICK,
Manufacturers of Cast Iron Water and Gas Pipes.
Retorts, Pipes, &c., &c., always on hand,
OFFICE, - - - - - - 109 LEONARD STREET, NEW YORK

HARRIS & BROTHER'S
Improved Dry Gas-Meter,
Patented May 17th and 31st, 1859.



HARRIS & BROTHER,
MANUFACTURERS OF EVERY DESCRIPTION OF
GAS-METERS AND GAS-APPARATUS,
No. 1117 Cherry St., Philadelphia.

JOHN COOK & CO.,
MANUFACTURERS OF THE BEST BLACK INK.
It will not corrode the pen nor mould in the ink-stand.
A GENERAL ASSORTMENT OF STATIONERY ALWAYS ON HAND.
No. 42 Cedar Street, N. Y.

F. A. SABBATON,
Albany, N. Y.,
GAS ENGINEER AND CONTRACTOR.
COAL AND ROSIN WORKS
Of any capacity constructed on the most approved plans.
Refer to CHARLES ROOME, Esq., Prest. Man. Gas-Light Co., N. Y.
H. PUMPELLY, " " Albany, " "
J. K. BRICK, " Engineer Brooklyn Gas Co.

NEW YORK CITY.

Gas Fitters.

OLIVER BARRETT & CO.,
120 West Broadway.

WILLIAM H. BLAKELEY,
308 Eighth avenue.

GEORGE BOECK,
103 and 92 Eldridge street.

FELIX B. BOURGUIGNON,
64 West Broadway.

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7 Bible House.

BROWN & HELME,
58 East Thirteenth street.

BYRNES & BRADY,
261 Seventh avenue.

THOMAS CURRAN,
436 Sixth avenue.

JOHN DEERING,
300 Ninth avenue.

DENOIELLE & MARSH,
1 Seventh street.

Plumbers.

ARTHUR W. J. SAVAGE,
669 Sixth avenue.

SAWYER & BALLANTINE,
221 Bleecker street.

JOHN SCHINNAGEL & CO.,
171 William street.

ROBERT SCOTT,
256 Seventh avenue.

JOHN SEXTON,
30 East Twelfth street.

ROBERT SHEA,
70 Trinity Place.

DANIEL SHERIDAN,
12 Whitehall street.

JOHN SHEWALL,
121 West Broadway.

WILLIAM P. SIMPSON,
69 West Twentieth street.

H. SLEIGHT & SON,
181 Sixth avenue.

PHILADELPHIA.

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ALBURGER & WOOD,
717 Spring Garden street.

WARNER, MISKEY & MERRILL,
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10 North Seventh street.

F. A. BOEMER,
335 Walnut street.

G. E. BROWN,
38 North Ninth street.

THOMAS A. BOYD,
1221 Market street.

THOMAS BROCK,
205 North Fourth street.

A. C. BROWN,
725 Buttonwood street.

BROWN & FISHER,
8 South Tenth street.

BUNTING & BROTHER
1351 South street.

A. CALDWELL,
1308 Ridge avenue.

CANBY & BROTHER,
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JOSEPH CARR,
338 North Fourth street.

JOHN M. CARRELL,
332 South Fourth street.

J. CHAMBERS,
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H'y Quackenboss, *Sec.* Eugene Plunkett, *Pres.*

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CAPITAL $200,000.—ASSETS $230,000.
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CAPITAL $200,000.
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The capital of this Company has been recently INCREASED BY A CASH SUBSCRIPTION OF $400,000, making the present capital
ONE MILLION DOLLARS,
WITH
A SURPLUS IN ADDITION OF OVER $300,000.

This Company INSURES AGAINST LOSS OR DAMAGE BY FIRE, on terms as favorable as the nature of the risk and the *real security* of THE INSURED and of the Company will allow.

LOSSES EQUITABLY ADJUSTED AND PROMPTLY PAID.

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No. 62 Wall street, New York.
CAPITAL, $300,000.
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CAPITAL $150,000.—ASSETS $233,990.
T. F. Jeremiah, *Sec'y.* Amos T. Hatfield, *Pres't.*

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No. 393 Canal and 66 Wall street, New York.
CAPITAL $150,000.—ASSETS $152,587.
Wm. Underhill, *Sec'y.* Matthias Clark, *Pres't.*

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No. 67 Wall street, New York.
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No. 67 Wall street, New York.
CAPITAL $150,000.—ASSETS $226,567.
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SAMUEL DOWN,

Nos. 340, 342, 344 AND 346 WEST TWENTY-SECOND STREET,

NORTH RIVER, NEW YORK CITY.

MANUFACTURER OF

WET AND DRY PATENT GAS METERS,

Pressure Registers, Pressure Indicators and Gauges, Station, Show, Customer and Experimenting Meters, and the Celebrated Testing Gas Holders* now used in the State of New York, in compliance with an Act of the Legislature.

ALSO,

THE PHOTOMETRICAL APPARATUS.

New York, June 25, 1859.

Mr. Down embraces this opportunity of returning his thanks to the Gas-Light Companies, Gas Engineers, and consumers generally, of the United States, the British Provinces, South America and Cuba, for the very liberal patronage he has received from them the past year, which has *greatly exceeded his most sanguine calculations;* the demand for his Improved Patent Dry Gas Meters having been, by *many thousands*, greater than any previous year. Mr. Down being a *practical mechanic*, and having given his *entire attention*, for over eighteen years, to the manufacture and improvement of Gas Meters, claims, without fear of contradiction, a superiority for the Gas Meters manufactured by him over all others in the country, for the proof of which he would simply revert to the fact that he has always manufactured for the *Manhattan and New York Gas-Light Companies all the meters used by them;* and at present is also manufacturing meters for the most extensive companies in the Union, the British Provinces, South America and Cuba. *All meters manufactured by him are tested and sealed by the Gas Meter Inspector of the State, appointed by the Governor under the act of the last Legislature.* His present factory was erected in 1847, and he believes it is the most complete and extensive at present in the world, and his machinery for gas meter making far in advance, in all the new improvements, of any other manufacturer's in the country. He therefore deems it highly necessary to place Gas-Light Companies throughout the Union, British Provinces, South America and Cuba *on their guard* against all parties who are so industriously endeavoring to introduce to their notice Patent Dry Gas Meters, *constructed precisely in imitation of his;* but with *Chinese-like characteristics*, without fully understanding the correct principles upon which they are made. Mr. Down respectfully invites purchasers to visit for inspection, at any time, his works and the materials used by him in his manufacture of Gas Meters, feeling assured that the result of such inspection will be the *undoubted conviction* of the correctness of his statement.

In conclusion, he would state that he is now prepared to manufacture the Photometrical Apparatus according to the correct English standard, and will furnish, gratuitously, the directions for arranging the Photometer Room and the rules for the proper working of the apparatus.

Mr. Down is fully prepared at all times to execute, upon the shortest notice, all orders for Gas Meters, wet and dry, and the Photometer Apparatus, with the guarantee of entire satisfaction.

Illustrative Electrotypes will appear in the next number of the American Gas-Light Journal.

* The standard of measurement of this Gas-holder is given by Professors Torrey, of the Assay Office; Joy, of Columbia College; Gibbs, of the Free Academy with several other distinguished scientific gentlemen.

GAS, WATER, AND SEWERAGE PATENTS.

UNITED STATES.

25,566.—Harvey Guild, of New Orleans, La., for an Improvement in Apparatus for Washing Gas:

I claim the arrangement of the water-pipe, G, and rose, H, within the inlet pipe of the wash-box, A, in combination with the perforated plate or diaphragm, F, at the junction of the inlet pipe, with the wash-box, substantially as described.

[This invention consists in a certain arrangement of a water-pipe and rose within the inlet-pipe of a gas-condenser, in combination with a perforated plate at the junction of the inlet pipe of the wash-box, whereby the gas is brought into very intimate contact with showers of water and caused to pass through small holes along with the water, and the gas is caused to be presented to the action of very extensive and constantly-changing surfaces of water, and very perfectly washed and purified.]

25,568.—John Howarth, of Salem, Mass., for an Improvement in the Method of distilling Oil from Coal:

I claim forming oleaginous vapors from coal or other substances yielding pyrogenous oils, by passing, through the material to be acted upon, a current of superheated steam, in combination with steam direct from the boiler, substantially in the manner and for the purposes set forth.

I also claim forming oleaginous vapors from coal or other substances yielding pyrogenous oils, by passing through the material to be acted upon air combined with superheated steam, substantially in the manner and for the purposes set forth.

25,575.—George Mowbray, of Green Point, N. Y., for an Improvement in Process of Distilling Oils from Coal:

In the manufacture of coal oils and other pyrogenous oils, by exposing the coal or other materials, to the products of combustion generated in a separate furnace, I claim igniting said products of combustion, previous to admitting the same into the distilling kiln, by admixture of a sufficient proportion of air, to burn the oxyd of carbon into carbonic acid, substantially as described and for the purposes set forth.

25,591.—John Stevens, and John Johnson, of New York City, for an Improvement in the Construction of Gas-burners:

We claim the apertures B B', in combination with the movable slide, C, or its equivalent, substantially as described, whereby the area of the passage for the gas or vapor is contracted at pleasure, at the point of its exit into the atmosphere, and the volume of the flame diminished, without substantially changing its character.

We also claim the arrangement of the branches, B B', diverging from a single pipe, A, and pressing by their elasticity against the opposite side of the slide, C, for the purposes explained.

25,607—James McFarlan (assignor to James McFarlan, Jr., and E. McFarlan), of Brooklyn, N. Y., for an Improved Portable Gas-holder:

I claim the construction of the gasometer, with its upper portion, B C, of conical form, with flexible sides, and with a stiff head, and of such size that it may be introverted, substantially as described, within the stationary tank-like portion, A, to which its flexible sides are attached.

25,609.—August Schmidt (assignor to himself, Charles Schmidt, Edward Schmidt, and Herman Schmidt), of New York City, for an Improved Apparatus for Making Gas from Wood:

I claim the arrangement of the arch-shaped retort, a, and narrow flues, g' g', with the arch of the retort, in the manner and for the purposes substantially as specified.

25,610.—August Schmidt (assignor to himself and Chas. Schmidt, Edward Schmidt, and Herman Schmidt), of New York City, for an Improvement in Apparatus for Making Gas from Rosin:

I claim the retorts, c, and its flues, e e, combined with the receptacle, or kettle, g, and arranged in the manner and for the purposes specified.

25,611.—Geo. Hand Smith (assignor to S. O. Smith), of Rochester, N. Y., for an Improved Apparatus for the Production of Hare's Hydro-Oxygen Light:

I claim, first, The use of carburetted hydrogen gas, in combination with the atmospheric air, or oxygen gas, in proportions desired, operating under condensation through a proper regulator, and discharging, through jets of minute orifice, upon, and rendering incandescent any proper radiating material, of any form, being independent of any atmospheric circumstances or situation, in the manner and through the means and machinery substantially as described.

Second, The arrangement of four jets or burners for directing the impact of gases or incandescent surfaces, such burners having minute orifices pointing to a common center, three of them placed so that their orifices of discharge shall be within or nearly within one-quarter of the circumference of a circle drawn through them from the center to which they point (being not more than one-eighth of such circumference distant from each other), and the orifice of the fourth being diametrically opposite in such circle to the middle orifice of the other, thus substantially as described.

25,621.—Wm. W. Batchelder, of New York City, for an Improvement in the Construction of Vapor Burners:

I claim arranging the orifice of discharge, l, from the retort, in reference to the open end of the gas-pipe, d, so that the sediment from the orifice cannot fall into said pipe nor remain about and choke the orifice, substantially in the manner and for the purposes set forth.'

I also claim the entire disconnection of the pipe, d, and retort, as set forth.

I also claim the combination of the circular form of the gas-pipe, d, with the horizontal discharge, as set forth.

I also claim connecting the retort with the ascending part of the gas-pipe near the burner, as set forth.

25,624.—B. B. Briggs, of Sharon, Ohio, for an Improvement in Apparatus for Laying Drain Tile:

I claim the described clutches, consisting of the block or body and the fingers, H H' H'' and F F', constructed and operating as set forth, in combination with the rope, C, or its equivalent and hook, B, when these several parts are arranged and operated substantially as specified.

25,646.—Job F. Howland, of New York City, for an Improved Tool for Cutting Gas-pipe:

I claim the arrangement of a stationary iron frame with a slot in it, which terminates in a conical form at one end, in combination with a sliding jaw having a V shaped tongue and with an adjustable sliding-cutter, substantially as and for the purposes set forth.

[This invention relates to an improvement in the tool which is used manually by the fitters-up of gas-pipes and other workers in tubing, for cutting off tubes or pipes. The object of this invention is to facilitate the adjustment of the cutter to the tool, so that it may be readily detached and sharpened when necessary, and also readily secured in the tool and rendered capable of being reversed, so that either end may be used.]

25,658.—Newton S. Manross, of Bristol, Conn., for an Improvement in Valves for Retarding and Arresting the Flow of Gases:

I claim the use of a re-curved or V shaped tube, or passage, having its lower part connected with a well, or reservoir, containing quicksilver, which is made to rise within the tube, by means of a plug, or other equivalent pressure, substantially in the manner and for the purposes specified.

I also claim the combination of such re-curved tube, closed by quicksilver, with the regulating apparatus, consisting of a tapering shoulder, and movable rod, secured from leakage, by passing through the quicksilver.

25,660.—N. B. Marsh, of Cincinnati, Ohio, for an Improvement in Hydrants:

I claim the arrangement, in connection with the main casing, G, discharge pipe, S, and air-chamber, E, of a hydrant of the upper and lower plunger, or valve-chamber, A C, made in one piece, F, upper plunger or valve, D, when composed of parts, k l m n r, and lower conical guide and stop-plunger, composed of parts, B h i, the whole being constructed, arranged, and used together, in the manner and for the purpose described.

[This invention relates to the details in the arrangement and construction of that class of hydrants which have two pistons or plungers, and consists in the connection of an air-chamber with the lower cylinder, in the mode of packing the pistons, and in the arrangement of the several parts in relation to each other. It was evidently made by a practical man, and appears to be well arranged.]

25,683.—Charles L. Stacy, of Cincinnati, Ohio, for an Improvement in Hydrants:

I claim the relative arrangement of the cup-formed disks, F, G, and G'', and the apertures, K and L, adapted in the manner set forth, to form a chamber I, closed on all sides (with the exception of the ingress aperture, K) while the hydrant is open, for the purpose of expanding the flanges, f, and g, and upon the closing of the hydrant to uncover the aperture, l, and thereby empty the discharge-pipe, C.

25,686.—H. K. Symmes, of Newton, Mass., for an Improvement in the Construction of Gas-burners:

I claim the combination with inverted cup, D, and tube, C, and the quicksilver basin or basins, or their equivalents, forming a movable connection between the base and tip of the burner, operating as described of the pawl-like rod, or its equivalent, attached to the cup, and a rest for said rod attached to the base of the burner, the whole operating as described to shut off the gas from the tip by the temporary increase and subsequent reduction of the pressure in the pipes.

25,703.—James C. Miller, of Irwin, Ohio, Stillman A. Clemens, of Rockford, Ill., and Gilbert H. Clemens, of Urbana, Ohio, for an Improvement in Lining Underground Drains:

We claim, first, The method of making covered field-drains by lining the inside with hydraulic lime, mortar, or other suitable material.

Second, A conducting-tube connected with a coulter.

Third, A forcing-bar, with valve-pistons attached, and working in a conducting-tube.

Fourth, A follower of less transverse dimensions than the mole to which it is attached, all substantially as described and for the specified purposes.

25,779.—Caleb C. Walworth, of Boston, Mass, for an Improvement in Cutting Screw Threads on Gas Pipes:

I claim the combination of two or more mandrels parallel, or nearly parallel to each other, and arranged to carry cutting tools with two or more vises, when these are arranged to revolve round a common center.

I also claim the combination of two or more sets of mandrels, as above, with two or more sets of vises, as above, when each set of mandrels is arranged to operate in unison with its corresponding set of vises.

I also claim the combination of two or more series of vises, one beyond the other, and arranged to revolve about a common center.

I also claim operating two or more vises, independently of each other or together, by one wrench, and by the means and in the manner substantially as specified.

25,790.—Alfred Marsh (assignor to John Q. Dudley), of Detroit, Mich., for an Improved Method of Preventing Deposition of Carbon in Gas Retorts:

I claim the introduction into the retort, during the gas-making process, of chlorate of potash, or other substance, which evolves oxygen when heated for the purpose set forth.

25,799.—Wm. W. Batchelder, of New York City, for an Improvement in Construction of Vapor Lamp-burners:

I claim modifying the flame under the retort, by means of the wires, a1 a2, or their equivalents, in such manner that the deposit of carbon shall be prevented, and the blue flame produced, as set forth. I claim deriving the gas for heating the retort from the gas-pipe, d, after its commixture with air, and before it reaches the illuminating jet, m, by means of the aperture, n, as set forth.

25,805.—John H. Carter, of Cincinnati, Ohio, for Improvements in the Construction of Hydrants for Filtration:

I claim the cylindrical inner vessel, g, within the case, A, and made removable as represented, in combination with the receiver, B, for receiving the sediment, as described, and the cap, e', for favoring the direction of the sediment downward, in the manner and for the purpose set forth.

25,834.—George H Kitchen, of New York City, for an Improvement in the Construction of Gas-regulators:

I claim the construction of the valve-chamber, A, having the valve fitted within it, substantially as described, with a series of recesses, d d, whose width increases in an upward direction, or an equivalent series of passages surrounding the valve and having their area of opening increased by the ascent and diminished by the descent of the valve, as described.

[This invention consists in a certain novel system and arrangement of passages surrounding a chamber, in which works a cup-shaped or disciform valve that is operated upon directly by the pressure of the gas, whereby the said valve is caused, by the action of the gas upon it, to regulate the flow of the gas to the burners under all conditions, by giving an enlarged opening to the passages as the valve is raised, and a diminished opening as the valve is depressed.]

25,866.—J. Burrows Hyde, of Newark, N. J. (assignor to Phebe Bamman, of same place), for an Improvement in the Method of Making Gas from Peat:

I claim, first, Exposing such peaty matter to thorough desiccation by artificial heat, and conveying it to the retort without permitting it to absorb moisture from the air.

Second, Granulating or powdering such peaty matter, distilling and cooling it in closed cases, as described.

Third, Employing the heat evolved in cooling the carbonized material to aid in desiccating the peaty matter, as described.

DESIGNS.

B. M. Johnson, of New York City, for a Design for Gas Cocks.

ENGLAND.

609.—James Pilbrow, of Tottenham, Middlesex, for certain Improvements in or a New Method or Methods of applying Motive Power, a Modification of which is applicable also, of pumping or forcing liquids, gases, and fluids.

637.—John Court, of Bromptan Row, London, Gas Fitter, for an Improvement in Nibs for Gas Burners.

642.—Alfred Tylor, of Warwick Lane, Newgate Street, for Improvements in Apparatus for regulating the Supply of Water to Water-closets and other Vessels.

644.—David Joy, of Leeds, Engineer, for Improvements in Hydraulic Engines and Meters

648.—John Samuel Davies, of Smethwick House near Birmingham, Gentleman, for a new or Improved Method or Combination of Atrangement for the better securing and collecting of Night Soil and Town Manure, and rendering it more valuable for Agircultural Purposes.

742.—George Neal, of Birmingham, for certain improvements in apparatus of fittings connected with the burning of gas for regulating and economising its consumption.

781.—John William Kelly, C. E., of Ennis, Clare, Ireland, for improvements in gas-burners.

801.—William Smith, of London, and Edmund Smith, of Hamburg, for improvement in means or apparatus for regulating the flow or passage of fluids.

823.—Joseph Desmet, Séaut of Mons, Belgium and Finsburg, for an improved gas burning and lightning apparatus. Prov. Pro. only.

828.—Joseph Sketcherby, of Ashby-de-la-Zouch, for improvement in apparatus for regulating the pressure of gas.

BELGIUM.

——— Albert, Improvement in the Burners of Lamps burning mineral oil.

PRUSSIA.

F. Martini, of Rothenbourg, a Furnace for making Tar of Peat and other fossil materials.

S. Elster, of Berlin, Apparatus for obtaining a Constant Level in Gas-meters.

AUSTRIA.

Ernest de Caranza, of Paris, Improvement in the apparatus and in the means of Making Gas.

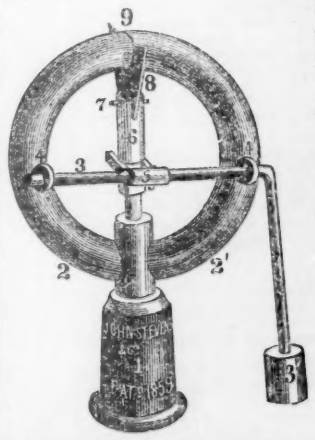
Nichalas Maynier, Apparatus for Cleaning Coals.

Frederick Paget, of Vienna, Improvement in the Purification, Clarifying, and Decoloration (*la décoloration*) of Rosins and resinous substances.

Christopher Endris, of Vienna, Improvement in the manufacture of Gas and in the preparation of materials for gas-lighting (*les gaz d'éclairage*).

JOHN STEVENS & CO.'S PATENT GAS-BURNER.

Messrs. John Stevens & Co., of No. 111 East Eighteenth street, have secured a patent for a new gas-burner, of which the following are the illustration and description:



1. The Gas Pillar.
2, 2¹ The Gas Way.
3, 3¹ The bent Lever.
4, 4¹ Bearings of the Lever.
5. Forked piece to move Sleeve 6.
6. Sleeve to which is fixed the Slide, 8.
7. The pin to secure the Slide, 8, to Sleeve, 6.
8. The Slide.
9. The aperture for the exit of Gas.

Fit the burner on any gas-fixture as usual; turn on the gas, move lever, 3, a few degrees more or less, to obtain the amount of gas desired, be it one foot or ten per hour. When the slide, 8, is up, but a small amount of gas can pass the aperture, 9; when down, the full volume will flow through. Slide, 8, of varying thickness, adapts the burner to gas of any specific gravity.

By using this gas-burner a maximum of light will be obtained from a minimum of gas, besides securing a *full pressure* when burning a small flame, thus securing a steady light, which no other burner, under like conditions, can do.

Gas-Works Wanted in South America.—A highly favorable monopoly is offered to contractors in our advertising columns.

Reports from 95 Gas-Light Companies, in reply to a Circular of Inquiries addressed to them by the Worcester, Mass., Gas-Light Company.

Town.	State.	Miles of St. Main.	Weight of Pipe per foot. lbs. 3 in.	4 in.	6 in.	8 in.	Length of Pipe cast. 3 in.	4 in.	6 in.	8 in.	Depth of Pipe from Surface.	Does Frost ever go below Pipes?	How many breakages in Street Mains in a year. And why.	What kind of Elbows or Bends in Service Pipes.	What kind of Elbows or Bends at foot of Lamp Post.	Pressure of Gas in Street mains.	Candle power of gas.	Cub. ft. of gas purified by 1 bush. of lime.	Per-centage of loss
											ft.					in.			
Albion	N.Y.	2					9	9			2½ a 3	no	1—Frost	Brass		2½		3000	
Alleghany	Pa.	12½	11	18	27	37	9	9	9	9	2½ a 5	yes	1—Settling	Mall. iron	Mall. iron	2	16	9550	15
Allentown	Pa.	5	10	14	20		9	9	9	9	2½	yes	None	"	"	2		6000	30
Ann Arbor	Mich.	4									2½	no	"	"	"	2	14		
Attleboro'	Mass.	6	10	13½	25		6	6	9	9	3	yes	1 in 3 years	Cast and mall. iron elbows	Cast and Mall. iron elbows	2½		25000	10½
Auburn	N.Y.	6					6	9	12	12	3	yes	3 or 4—Frost	" "	"				
Augusta	Me.	6					6	6	8	8	3½	yes	2 in a year av.			2½		2750	18
Bangor	Me.	8½	12½	16	28	34	9	9	9	9	3 a 4	yes	2—Frost	Mall. iron	Wrought-iron bends	2			14
Belfast	Me.	2½					6	9	9		3½	no	1—Cause unkn'wn	Mall. and cast-iron elbows					
Bethlehem	Pa.	2½									2 a 3½		No	Cast and wrought-iron elbs.	Cast and wrought iron elbs.	2½		25000	10½
Bordentown	N.J.	2		20	30		6				2 a 6	no	"			2½	15	28500	20
Bridgeport	Conn.	5	13½				9	9	9	9	3	yes	"	Brass	Brass	2½	18		
Bridgeton	N.J.	3					9	9	9	9	3	no	"	Wro't-iron bends, brass elbs.	Wrought-iron bends			2000	
Brooklyn	N.Y.	100	14	20	30	41	9	9	12	12	2	yes	"	" "	"				
Canandaigua	N.Y.	4	12				8½	8½	8½		3	yes	1—Cause unkn'wn	Mall. iron, cast and brass	Mall. iron, cast, and brass	2½	15	5600	6½
Cambridge	Mass.	23½	11				9	9	9	9	3	yes	2— "	Mall. iron.	Mall. iron	2	18	20000	10
Camden	N.J.	14					9	9	9	9	2½ a 3	no	No	Wrought iron	Wrought iron	2¼			12½
Charlestown	Mass.	12½					9	9	9	9	2½ a 3	yes	Occasn'y, at a joint	Mall. iron.	Mall. iron	2½		4000	12
Chicago	Ill.	40	12	18	34		9	9	9	9	3	yes		Wrought-iron bends	Wrought-iron bends	3½		7000	15
Columbus	O.	8	13½	18			9	9	9		3½	yes	No	Mall. iron	No difference	1½		5000	25
Dayton	O.	8	13	18	35		9	9	9	9	2½ a 3	no	"	Wr't-ir'n bends, mal. ir'n elbs.	Wrought-iron bends	2¼		11500	16
Detroit	Mich.	20	10	18	30	40	9	9	9	9	3½	yes		Cast iron	"	1½		9500	5
Dorchester	Mass.	14	10½	11½	27		6	9	9		3	yes	2 or 3	Mall. iron	Mall. iron	2½			
Easton	Pa.	8					9	9	9	9	3	yes	No	"		2¼		3150	22
East Boston	Mass.	5½	9	16	28		6	9	9	9	3 a 4	yes	18	Wrought and mall. iron	Wrought and mall. iron	2		3500	5
Elizabethtown	N.J.	6½					9	9	9	9	3	no	No	" "	"	2½		4000	10
Elmira	N.Y.	5	12½				9	9	9	9	2½ a 3	yes	1 a year	Wrought-iron bends	Wrought-iron bends	2½	12		6½
Fitchburg	Mass.	5					6	9	9		3 a 4	yes	1—settling	Cast and mall iron	Mall. iron	2		20000	6
Frankfort	Ky.	3					5	5	9	9	2½ a 5	yes	No	Wrought, mall. iron, & brass	Brass, mall. & wrought iron	2½	12	9000	10
Frederick	Md.	3					9	9	9	9	2½	yes	"	Brass and iron	Mall. iron	2	18		30
Hollidaysburg	Pa.	3					7	7	7	7	2½ a 3	yes	1 or 2—Frost	Wrought iron	Wrought iron	2½	11½	6000	25
Honesdale	Pa.	3									3	no	No	"	Mall. iron	1½	13	4000	
Hudson	N.Y.	3½	11	17			9	9	9	9	3	yes	1—Frost	Wrought-iron bends	Wrought-iron bends	2½		4000	15
Huntsville	Ala.	1					9	9			2	no	No	"	Mall. iron				
Iowa City	Iowa.	2½	13	17	30		8	9	9		4	no	"	Mall.-iron elbows	"			16000	
Jackson	Miss.	3					7	9	9	9	3 a 4	no	"	"	Wrought iron bends	2½		2500	
Janesville	Wis.	4					9	9	9	9	3½	yes	"	"	Mall. iron	2½		2000	10
Kalamazo	Mich.	4	10	15	25		9	9	9		1½ a 4	yes	"	Cast-iron elbows	Wrought iron pipe	2½	10	8000	25
Kingstown	C.W.	5½	11½	19	30	47	9	9	9	9	3½	yes	Seldom by frost.	Wrought-iron bends	Wrought-iron bends	1¼		5000	14
Lawrence	Mass.	7	12½	13½	32½	54½	9	6	8	10	3 a 3½	yes	3—Frost	Mall. iron	Mall. iron	1½			10½
London	C.W.	8	15	21	39	47	9	9	9	9	4	no	Seldom—lay'g sew's	Wrought and mall. iron	"	1	12		
Louisville	Ky.	36	10½	19½	34½	45½	9	9	9	9	2½ a 4½	yes	1 in 5 yrs—sewers	Wrought-iron bends	Wrought-iron bends	1½	20	2688	12
Lowell	Mass.	18	10½	15	24	33	9	9	9	9	3 a 4½	yes	Several—sewers	Mall. iron.	Mall. iron	2¼	19½	3500	4
Madison	Ind.	5½					8				2½	no	None	Wrought-iron bends	Wrought-iron bends	2½		8000	20
Manchester	N.H.	12	10½	15	23	29	7	8	9	9	3 a 4	yes		Cast iron	Cast iron	2½	24	8000	16
Manhattan	N.Y.	207	12	16	32	40	9	9	12	12	2½ a 3	yes	Few	Wro't-iron bends, brass elbs	Wrought-iron bends	1½	14		
Middletown	Conn.						6	9	9	9	3½ a 5	yes	1—Frost	Brass and mall. iron	Brass, and Mall. iron	2¾	18	6000	4
Milwaukie	Wis.	15	13	16	30		9	9	6	9	3 a 4	yes	3 per year	Mall. iron	Mall. iron	3		6000	18
Muscatine	Iowa.	1½					6	10	10		3½ a 4½	yes	No	Mall. iron, very thin	Mall. iron, very thin	2¾		1600	15
Nantucket	Mass.	3½									2 a 2½	no	1—Frost	Cast-iron elbows	Cast iron			2300	
New Brunsw'k	N.J.	7					9	9	9	9	3 a 5	yes	No	Wrought and mall. iron	Wrought & mall. iron	3½		1400	16
New Haven	Conn.	21	11		29		9	9	9	9	3	yes	2 in 10 yrs—frost	Wrought iron and brass	Wrought iron and brass	2½	22		
New London	Conn.	4½					9	9	9	9	3 a 4	yes	1 in 6 years—frost	Mall. iron	Mall. iron	2		7000	
Newport	R.I.	7					6	9	9	9	1½ a 3	yes	No	"	"	2½	16	6000	16
Newton	Mass.	10½	11	18	30		9	8	8		2½ a 4	yes	2 or 3 from frost y'ly	Cast-iron bends	Cast-iron bends	1½		7000	23
New York	N.Y.	130					9	9	9	9	2 a 3½	yes		Wrought-iron bends	Wrought-iron bends	1½			
Owego	N.Y.	3					6	9	9	9	3	no	1—Frost	Mall. iron	Mall. iron	¾	15	3500	2¼
Paterson	N.J.	5½	11				9	9	9	9	2½	yes	1—Cause unknown	Wrought-iron	Wrought iron	2	13	3500	½
Pawtucket	Mass.	6	9	14			6	6	9	9	2½		2 or 3—Frost	Cast and mall. iron	Cast and mall. iron	2	15	32500	12
Petersburg	Va.	8	12	18	29		9	9	9	9	2¾	no	No	Wrought iron bends	Wrought and cast iron	1½	12	2500	15
Pittsburg	Pa.	26	15½	20	34	45	9	9	9	9	3½	yes	Occasion'y—Frost	"	" "	2½	14	14000	8
Piqua	O.	3½	9				6	6			2½	no	Not from frost.	Mall. iron	Mall. iron	1½	15		25
Portland	Me.	16½	12	15½	28	40	9	9	9	9	3 a 4	yes	"	Wrought iron	Wrought-iron bends	2½	19	5600	18
Portsmouth	O.	4	20	30			8½	9			1½ a 2	yes	2—Frost	Mall. iron and brass	Mall. iron			5000	10
Portsmouth	Va.	3					9	9	9	9	3	no	Not from frost.	Brass	Brass				
Pottsville	Pa.	4½	12	16	32		9	9	9	9	3 a 4	yes	2, 3 years ago	Brass and mall. iron	Wrought-iron pipe	2¼		7000	20
Providence	R.I.	36½	12½	17½	27½		9	9	9	9	3 a 3½	yes	2—Frost	Wrought iron and malleable	Wrought and mall. iron	2¼		24400	6
Quincy	Ill.	6					8	8	8		2 a 4	yes	Not past year	Mall. iron	Mall. iron	2¼	11	4086	10
Richmond	Va.	31	13	18	36	49	9	9	9	9	3	yes	yes, exc'n for culv'ts	Wrought and cast iron	Wrought and cast iron	4		2000	10
Rochester	N.Y.	22					9	9	9	9	3	yes		Brass	Brass	1½		5500	8½
Roxbury	Mass.	17	12				6	6	9	9	2½ a 3	yes	1 in 2 years—Frost	Mall. ir'n elbs, wr't ir'n bends	Wrought and mall. iron	2½	16	10000	6½
Salem	Mass.	12	11½	15	24		7	9	9	9	3½	yes	Often	Mall. iron	Mall. iron	2½			12
Sandusky	O.	3½	23				9	9	9	9	1½ a 3	yes	"	"	"	1½	10	9000	10
Saratoga	N.Y.	4					8	8	9	9	3	yes	Not from frost	Cast iron	Cast iron	2½	19		
South Boston	Mass.	7½					6	9	9	9	2½ a 4	yes	2—Frost	Mall. iron	Mall. iron	2¾		46500	7
Staunton	Va.	2½	11½	16	27		9	9	9	9	3	no	"	"	"	2	15		
St. Louis	Mo.	47	17	22	32	53	9	9	9	9	2½	yes	1 av. 12 a y'r—frost, &c.	Wro't and cast-iron bends	Wrought and cast iron	2½	16	6000	
Taunton	Mass.	4½	11	15	24		9	9	9	9	3	yes	1—Frost	Cast and mall. iron	Cast and mall. iron	2		10000	15
Toronto	C W.	36	13½	18½	30½	42	9	9	9	9	3 a 4	yes	Sev'l—not fr'm frost	Wrought-iron bends	Wrought-iron bends	1½		3000	15
Trenton	N.J.	6½	12	15	30		9	9	9	9	1½ a 4	yes	4 or 5 split in 2 y'rs	Mall. iron.	Mall. iron	2½	12	3500	20
Troy	N.Y.	22					9	9	9	9	4	yes		Brass	Brass	3½	19	5500	5
Utica	N.Y.	8					9	9	9	9	4	yes	2—settl'g of sewer	Mall. iron	Mall. iron	2½			12
Vicksburg	Miss.	3					9	9	9		2½ a 3	no	Some in fall of year	Bend the pipe; no separate Fitg's.		2½	16	4000	10
Waltham	Mass.	7	12½	14½	26		9	8	9	9	2½	yes	3—Frost	Cast iron	Cast iron	2½		10500	13¾
Waterbury	Conn.	5½	10½				9	9	9	9	2½ a 3	yes	2—Frost	Wrought or mall. iron	Wrought and Mall. iron	2½			20
West Chester	Pa.	5	15	19	33	50	9	9	9	9	3 a 4	yes	1—Frost, in 6 y'rs	Wrought-iron bends	Wrought-iron bends	2		2500	15
Wheeling	Va.	8	13	18	30	40	9	9	9	9	2½	yes	No	"	"	28		2400	25
Wilmington	Del.	9½	10½				9	9	9	9	3	no	No	Wrought and cast iron	Wrought and cast iron			3300	10
Wilmington	N.C.	6					7	9	9		2½	no	No	Wrought iron	Cast-iron elbows	1½	15		
Wakesburn	Pa.	6	11	16	33		9	9	9	9	3	no	No	Wrought-iron bends	Mall. iron	2			20
Williamsport	Pa.	3	12½	22	31½		9	9	9	9	2½ a 4	yes	No	Mall. iron	"	1¾	15	10000	20
Winchester	Va.	3					9	9	9	9	2½	no	1 a year—Frost	Wrought-iron bends	Wrought-iron bends		12	3500	14½
Worcester	Mass.	5½	12½				9	9	9		3	yes	1 in 4 years—Frost	Mall. iron		1½	15	4000	10
Yonkers	N.Y.	9	15				6	9	9	9	2 a 4	yes	No	Wrought-iron bends	Wrought and cast iron bends	2¼	12	2000	20
Zanesville	O.	11½	10½	14	28		9	9	9		3 a 5	yes	5 in 7 years—Frost	Brass, cast, & mall. iron	Cast and mall. iron	2	16	65000	5

Question.—Do you use foreign substances to fill around Lamp-posts?—All replied, No; excepting Bethlehem, Pittsburg, Richmond, Utica, Wheeling, and Williamsport.